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# MANUFACTURERS RECORD

A Weekly Newspaper Devoted to the Industrial, Financial, Railroad,  
Mining, Contracting, Engineering, Building, and General  
Business Interests of the South and Southwest

Vol. 67  
No. 22

ESTABLISHED 1882

\$1.00 Per Year  
Single Copy 15 Cents

Electrification of Norfolk & Western's  
Elkhorn Grade.

Canalizing the Cape Fear River in North  
Carolina.

Water's Relation to Wealth and Welfare.

Elbert H. Gary's Outlook on Business.

BALTIMORE, JUNE 3, 1915



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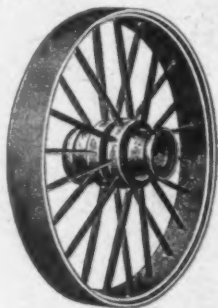
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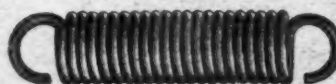
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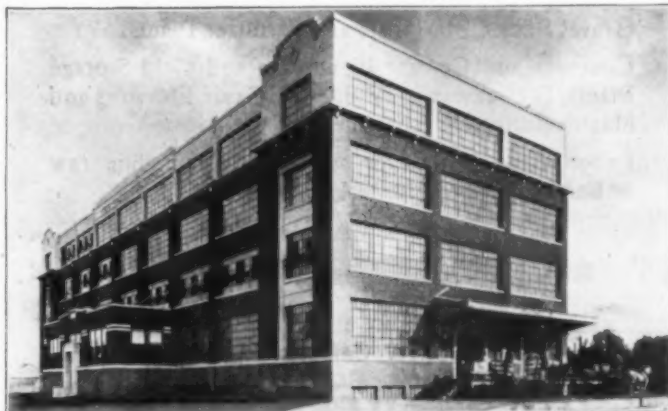
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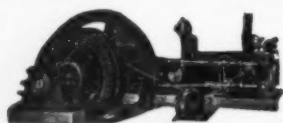
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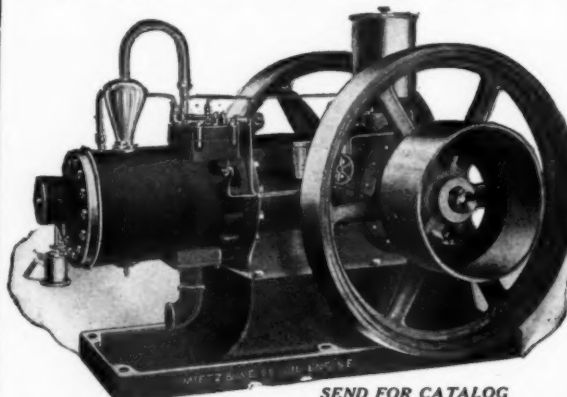
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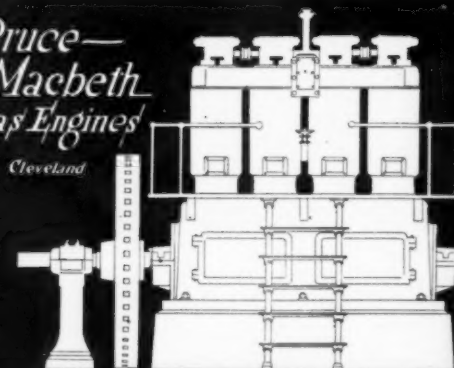
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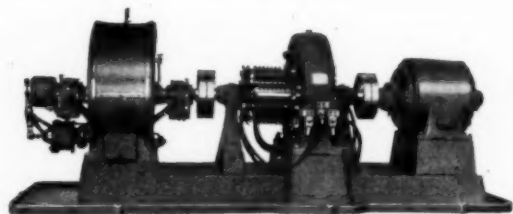
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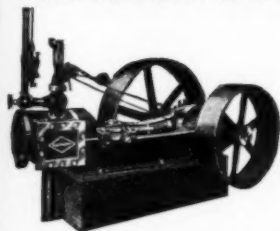
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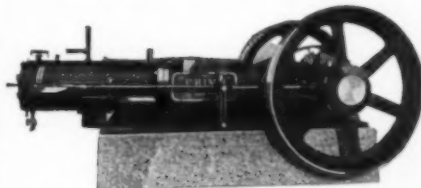
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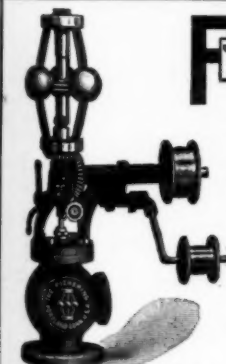
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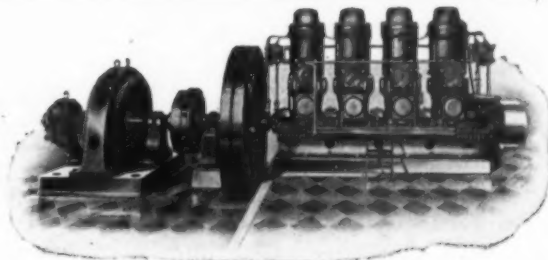
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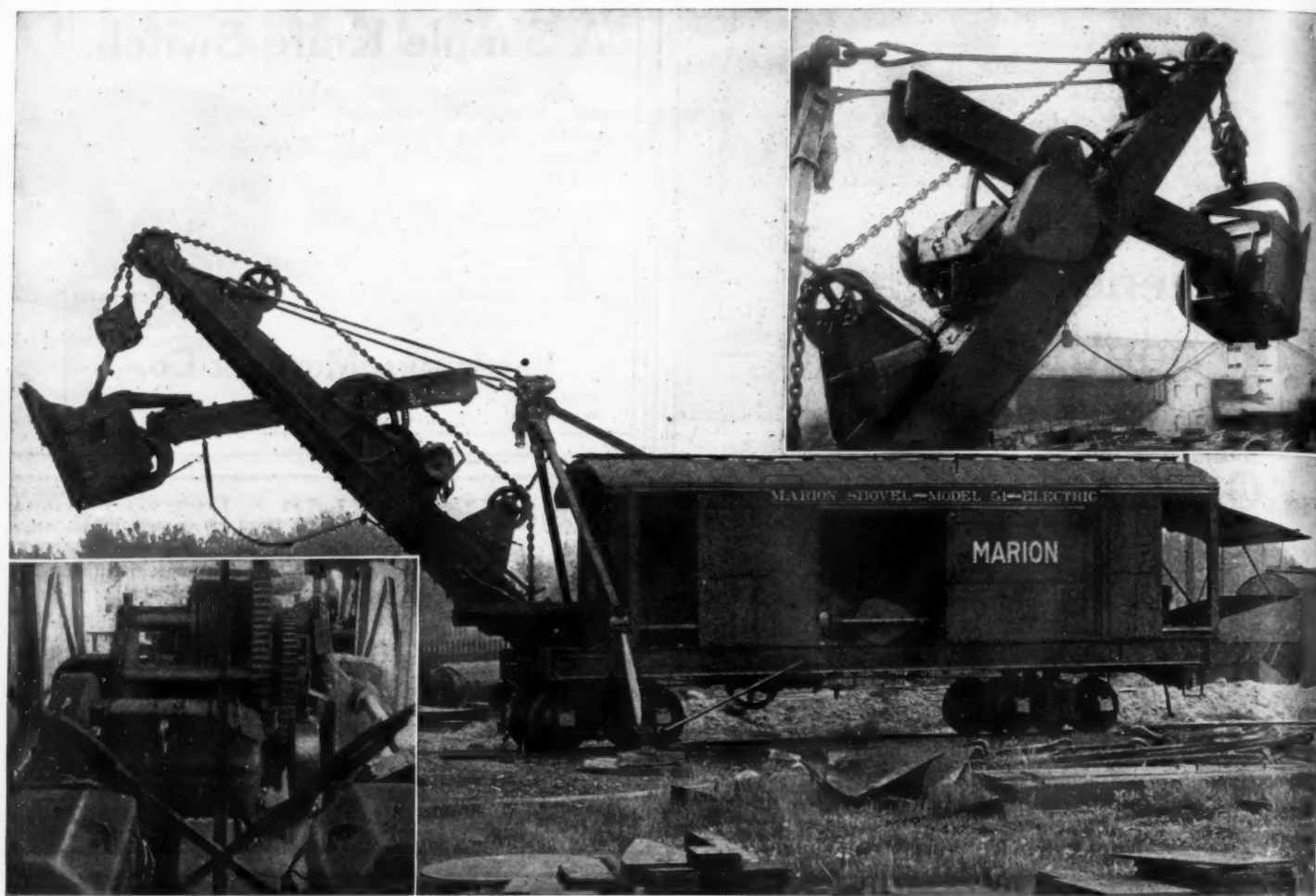
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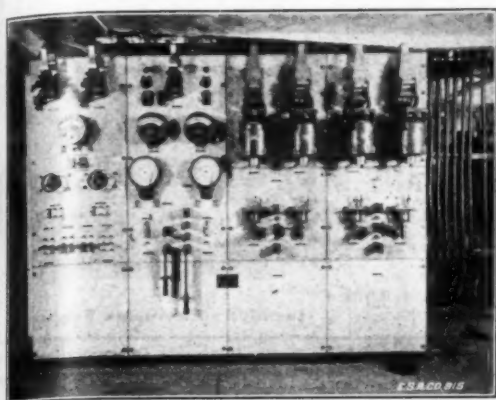
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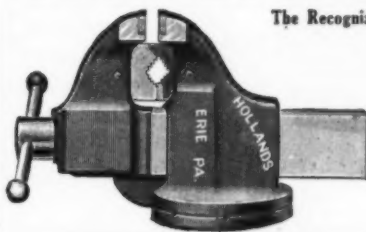
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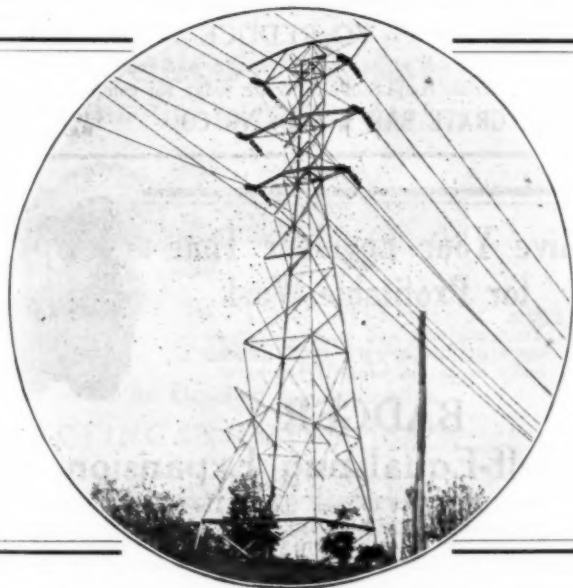
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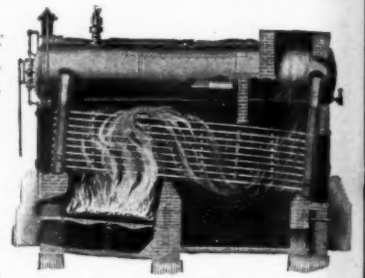
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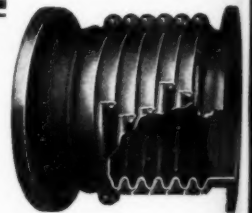
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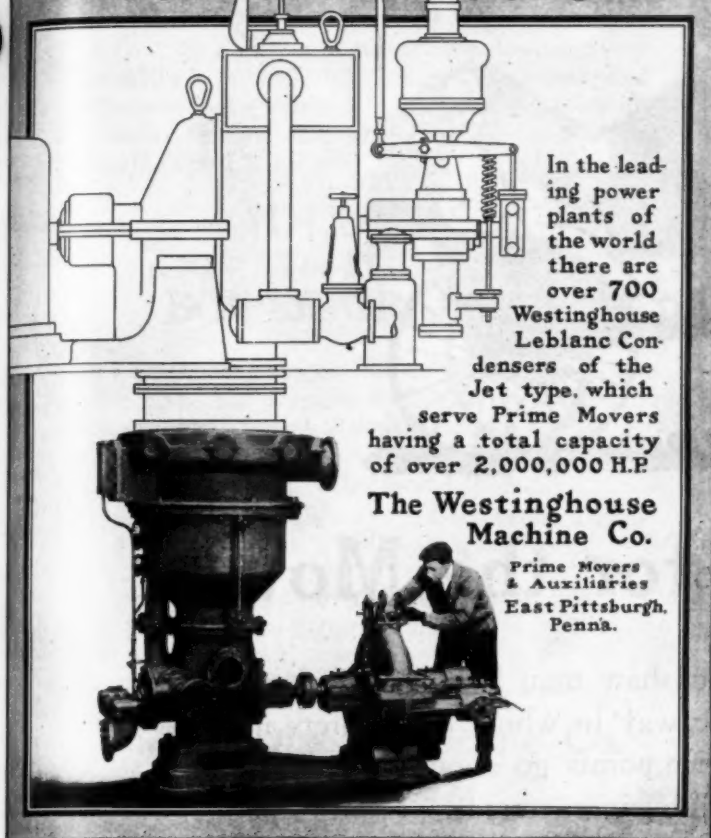
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### BLOW-OFF VALVES

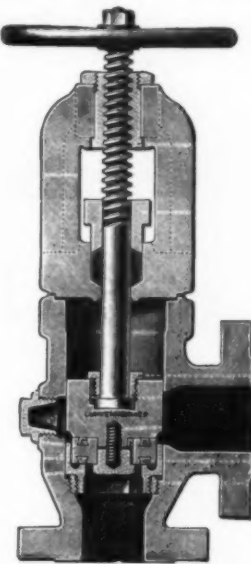
STRAIGHTWAY AND ANGLE PATTERNS

have a self-cleansing seat — the vital feature in a blow-off valve.

Passages are free and unobstructed.

All parts are easily renewable without breaking pipe connections.

**Straightway Pattern** made in **Bronze**, for 200 and 300 pounds working steam pressure, and in **Iron Body Bronze Mounted** for 125 and 175 pounds pressure.



**Angle Pattern** made in **Iron Body Bronze Mounted** for 125 and 250 pounds working steam pressure.

Ask your dealer for descriptive booklet or write for catalog.

**THE LUNKENHEIMER CO.**  
— "QUALITY" —

Largest Manufacturers of  
High Grade Engineering Specialties  
in the World

CINCINNATI

New York Chicago Boston London

## Wm. Sellers & Co., Inc.

PHILADELPHIA, PA



**BOILER WASHER and  
FIRE EXTINGUISHER**

Can be attached to Locomotive.

**SELF-ACTING INJECTOR** The only injector for Lumber Mills and Logging Roads

## THE OTIS HEATER SHIPPED ON ITS MERITS



Guaranteed to heat your feed water to 200 degrees or more with the proper quantity of exhaust steam. Its brass tubes are all suspended from the top, enabling them to expand and contract with perfect freedom. We guarantee that the tubes will not become loose (as they do in some other types). All heaters are tested at 200 lbs. hydrostatic pressure before shipment.

Write for Illustrated Catalogues.

The Stewart Heater Co. 3 Norfolk Ave. Buffalo, N. Y.

**CANNING MACHINERY—Cans, Cases, Labels**  
A. K. ROBINS & COMPANY 116 Market Space, Baltimore, Md.

## ALBERGER STEEL EXPANSION JOINTS FOR HIGH PRESSURES

THIS Alberger Expansion Joint is designed to withstand steam or water pressures up to 200 pounds per square inch.

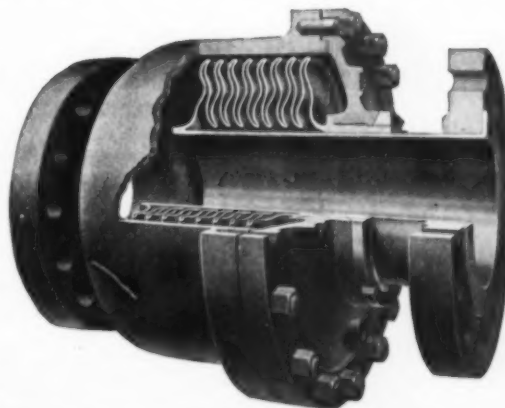
The discs forming the elastic element are made of chrome-vanadium steel, especially heat-treated, resulting in a metal which has an elastic limit of 150,000 pounds per square inch and capable of withstanding innumerable lineal movements without fatigue.



This pamphlet is replete with engineering data upon the subject and the practical as well as the mechanical engineer will find it of interest. We will be glad to mail you a copy.

**ALBERGER PUMP & CONDENSER COMPANY** 140 Cedar St., NEW YORK

BRANCHES: Chicago St. Louis Pittsburgh Boston San Francisco Atlanta





## Not Dressed Up for the Movies

THIS gorgeously be-decked 'rickshaw man is not dressed up for the occasion. This is the way in which our bearers in Durban and other far-off South Africa points go about their daily work in carrying our agents on their business rounds. From Cape Town to Rhodesia, into Portuguese and German territory, Texaco Products are supplying the needs of the South African natives for high grade petroleum products.

That and other foreign business has been secured by giving good value, by supplying oil as good as skill and science can produce. Consequently, they satisfy.

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There is a Texaco agent near you. Call on him when you need lubricants; gasoline, roofing or any of the many products which we manufacture and market under the Red Star and Green "T."

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General Offices: HOUSTON, TEXAS

*Distributing points throughout the South*





## Steaming Capacity Increased 25 Per Cent.

A Chief Engineer writes us: "I have been using your graphite in our boilers for the past five months and it has worked a wonderful change. The scale is all removed from the sheets and the steaming capacity has increased 25 per cent."

### DIXON'S The Pioneer BOILER GRAPHITE

Is a true boiler cleanser. Its action is all beneficial. The flakes find complete distribution in the boiler, penetrating into and under the scale and softening it. Then they form a veneer of graphite on tubes and plates to which scale cannot adhere.

Dixon's Boiler Graphite cleans the sheets and tubes and keeps them clean. "It's all in the flakes."

Send for "Graphite For  
the Boiler," No. 80-T

Made in JERSEY CITY, N. J., by the

**Joseph Dixon Crucible Co.**

Established 1827

## GULF REFINING CO.

REFINERS OF  
Oklahoma and Texas

### PETROLEUM

HIGH GRADE

Engine Gasoline  
Kerosene  
Gas Oil

Painters' Naphtha  
Stove Gasoline  
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Paving and Roofing Asphalt

### OUR KEROSENE AND GASOLINE

IS MANUFACTURED FROM

HIGH GRADE OKLAHOMA CRUDE OIL

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HIGH VISCOSITY LOW COLD TEST

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of Asphaltum Base for  
Oiling Roads**

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### Leading Railway Lubricating and Illuminating Oils of America

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Guarantee Cost

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Expert Service

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We build Filters and Softeners for  
any purpose and of any capacity.

"A Laborer can operate them"

This cut shows the Operating Floor of Filter  
Plant installed for city of Wilmington, N. C.

**American Water Softener Co.**  
1019 Chestnut Street PHILADELPHIA



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OWNERS OF THE NEGATIVE HEAD FILTER PATENTS

LICENSEES: PITTSBURGH FILTER MFG. CO. NORWOOD ENGINEERING CO.  
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### INTERNATIONAL FILTER CO. FILTERS CHICAGO SOFTENERS

### "Mt. Savage" Fire Brick

BRANDS

"MT. SAVAGE"  
"M. S. A."

"REFRACTO"  
"CARBURETER"

Capacity 20,000,000 Per Year

**Union Mining Co.**

OFFICE AND WORKS:  
MT. SAVAGE, MD.



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High Grade Firebrick  
and Fireclay Products.  
MEXICO BRICK & FIRE CLAY CO., MEXICO, MO.

### Killian Fire Proofing & Brick Works

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FIRE BRICK

### Slow Speed, Low Power Blower Systems

SOUTH ATLANTIC BLOW PIPE & SHEET METAL COMPANY

BLOW PIPE ENGINEERS

SAVANNAH

ATLANTA

JACKSONVILLE

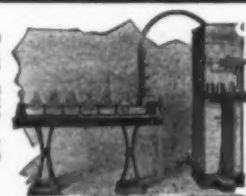
### PROTECTION

The CLARK METER BOX, a thoroughly demonstrated success  
throughout many years of actual service in Water Departments;  
furnished in Fifty-three models regularly, and in any special  
construction desired.

The CLARK METER TESTER now furnished in six different  
complete Machines, including scale and  
tank; also made up in any special manner  
to suit customer.  
Our new loose-leaf Catalog "N." showing  
many meritorious and new Water Works  
Appliances, will be mailed on request.



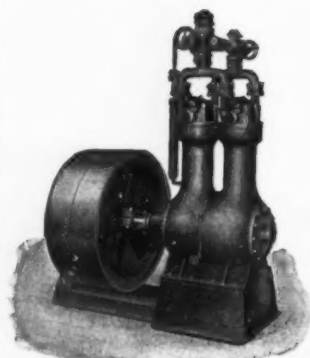
**H. W. CLARK COMPANY**  
1121 Hayes Ave. MATTOON, ILL.  
New York San Francisco Chicago



The Clark Meter Tester



## BRECHT ICE MACHINES $\frac{1}{2}$ to 20 TONS



For Hotels, Markets, Hospitals, Creameries, Ice-Cream Factories, Florists, Public Institutions, Residences, etc.

Also Portable Cooling Rooms, Special Refrigerating Boxes and Cold Store Doors.

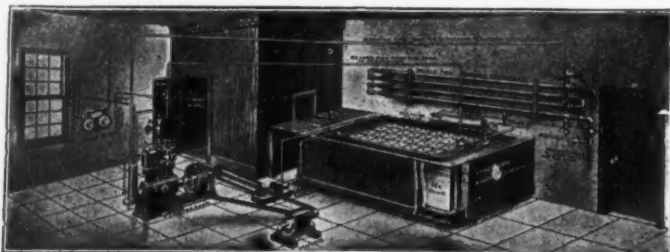
### THE BRECHT COMPANY

ESTABLISHED 1853

Dept. K 1226 Cass Ave.  
ST. LOUIS, MO.

NEW YORK: 176 Pearl Street  
HAMBURG BUENOS AIRES

## CRYSTAL ICE from RAW WATER



Ice-Making Plants from one to eight tons capacity.

Portable Ice Plants, 300 pounds to 1000 pounds capacity.

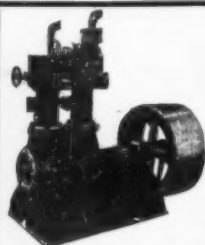
Drinking Water Plants for Mills and Offices

Refrigerating Plants for Cold Storage and all purposes.

Small Ice-Making and Refrigerating Plants Our Specialty

Over 20 Years Experience

REMINGTON MACHINE COMPANY, Wilmington, Del.



### This Ice Machine

will save you from  $\frac{1}{2}$  to  $\frac{3}{4}$  of your ice bill, depending on the quantity of ice you buy, and not on the kind of business you do. We'll prove it if you wish.

Write for circular and prices.

The Portsmouth Engine Co.  
PORTSMOUTH, OHIO

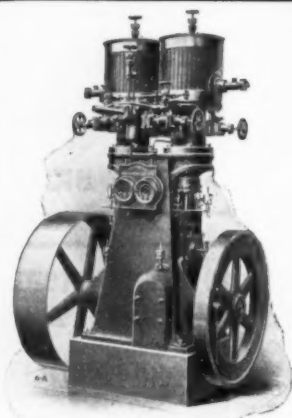
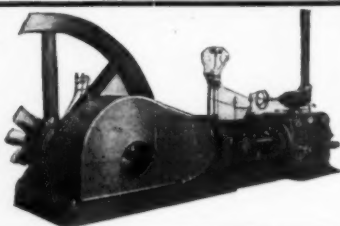
Sizes from 1 to 10 tons.  
Positively the most simple, the strongest and most modern type of Small Refrigerating Machines. Improved by simplicity of construction and operation right up to October, 1914.

### THE VILTER MFG. CO.

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## Corliss Engines

Ice and Refrigerating Machinery



## FRICK

### Refrigerating Machines

have so many good features and give such satisfactory service that users constantly acknowledge Frick the most desirable refrigerating machine on the market.

Frick machines are desired because—

They are built to stand hard usage—

They are durable—reliable—

They are neatly designed—

They lend dignity and confidence to the engine-room.

The Frick machine is the bulwark to an up-to-date ice-making and refrigerating plant.

Be sure to ask for our latest Catalog P9.

## FRICK COMPANY

WAYNESBORO, PA.

ATLANTA, GA., 406 Atlanta Natl. Bank Bldg. DALLAS, TEX., 806 Sumpter Bldg.  
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## YORK CO

Plants have been successful in every field where refrigeration is used. Had they failed they would not be on the market today.

Therefore we believe it will be to your interest to consult us freely as to your requirements. If you have any problems to solve, we can help you in a practical way. So much depends on getting started aright.

May we figure on your needs? The YORK Organization is at your service.

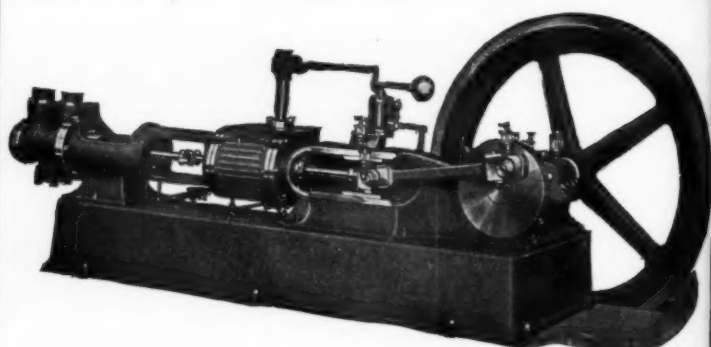
## YORK MANUFACTURING CO.

(Ice-Making and Refrigerating Machinery Exclusively)

YORK, PA.

SOUTHERN BRANCHES:  
Atlanta St. Louis Nashville New Orleans Houston El Paso

We have an interesting exhibit in operation in the Palace of Food products at the Panama-Pacific International Exposition.



## Some Points of Economy

## THE ABSORPTION ICE MACHINE

No part of our machine requires excessive foundations. It uses less ammonia, oil and waste than other machines, and no more steam than really necessary for distilled water. In all other respects the operating expenses are less than other types. It is paying many to take advantage of these points of economy by using the Absorption Machine, and it would certainly pay you. Let us interest you today. Our catalogue is free for the asking.

Machines of any capacity - - -

Breweries, - - -  
Packing Houses, -  
Cold Storage Plants,  
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## Henry Vogt Machine Co.

LOUISVILLE, KY.



### Safety First—Service Always

The business we are particularly proud of is our repeat orders—orders for additional equipment from old customers, who are already operating one or more "H. & C. Safety" Compressors.

Our "come-back" business is a big business in itself and positively proves we have given a big value.

Write for an estimate on your requirements.

**THE HUETTEMAN & CRAMER CO.**

Refrigerating and Ice Making Machines,

Detroit, Michigan

PURE  
OAK  
TANNED

FOR

## Leather Belting

ACID  
WATER  
STEAM  
PROOF

**THE DRUID OAK BELTING COMPANY**  
(INC.)

BALTIMORE, MD.

## THE "CHESAPEAKE" BELT PULLS


Transmits more power than any other Canvas Stitched. Fully Guaranteed.  
**CHESAPEAKE BELTING COMPANY, Baltimore, Md.**

### Belt Assurance

#### "BALTOBELT"

¶ The Twentieth Century achievement in Leather Belt Making. ¶ A product of honest, old-fashioned oak tanned Leather and skilled workmanship, perfected by many years of careful labor and study. Send for booklet and prices.

**BALTIMORE BELTING COMPANY,**  
Leather Belt Makers, Baltimore, Md., U. S. A.



## Columbian Transmission Rope for every condition

Working conditions peculiar to your line of business, or climatic conditions, may necessitate special care in the selection of your transmission rope. The man who cares—the man who is looking for the best service for the least money always ends by installing—



## Columbian Manila Transmission Rope

By getting in touch with our transmission rope experts you will be enabled to secure the rope best suited to your peculiar needs and conditions. You can always be sure of satisfaction, for COLUMBIAN is made of the highest quality of tough, long fibre manila—and made to stand the constant grind around the sheaves.

Tell us your transmission rope requirements, and we'll help you in your problems.

### Columbian Rope Company

600-615 Genesee St.

Auburn

New York

## COLUMBIAN Tallow Laid Transmission Rope

—the standard for indoor drives.

## COLUMBIAN Graphite Laid Transmission Rope

—excellent for drives exposed to the weather or to unusual working conditions.

**SPECIAL REQUIREMENTS**  
of mills, etc., receive our prompt attention.

Branch Offices:  
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**CHICAGO**  
**BOSTON**

**Toughness, flexibility, and resistance to stretch are the three outstanding qualities of a good conveyor belt.**

**We believe that Leviathan and Anaconda combine these three qualities more completely than any other types of belt.**

- That** they are tougher—more resistive to abrasive wear from the material carried.
- That** they are more flexible than any other belts approaching them in toughness.
- That** they have less stretch than any other belts of any kind.
- In addition, Anaconda is thoroughly waterproof, genuinely heatproof as well as highly resistive to action of chemicals.

# LEVIATHAN and ANACONDA Belting

The combination of these qualities in Leviathan and Anaconda makes them capable of delivering the finest possible conveyor service—belts that trough and round the pulleys without cracking or splitting and which require least attention and "take-up."

We guarantee *at least* dollar for dollar service compared with any other belt you have ever used—actually, Leviathan and Anaconda may be depended upon to give you considerably more than this in Service, with an additional saving in time and attention.

Leviathan and Anaconda are made of stitched canvas simply because this material *processed the Leviathan and Anaconda way* produces belts of greatest general Service ability.

You will lighten your conveyor troubles by telling them to us.

## MAIN BELTING COMPANY

Philadelphia  
Pittsburgh  
New York

Manufacturers and  
Engineers

Birmingham  
Seattle  
Chicago

**Main Belting Co. of Canada, Ltd.**  
Montreal Toronto

¶ Here is an Anaconda 800' x 30" x 6-ply, which is handling 1200 tons of hot cement daily, running 24 hours a day.





**MILFORD LIGHT AND POWER COMPANY**

UNION SQUARE.

MILFORD, N. H. Feb. 9, 1915.

Graton & Knight Mfg. Co.,  
Worcester, Mass.

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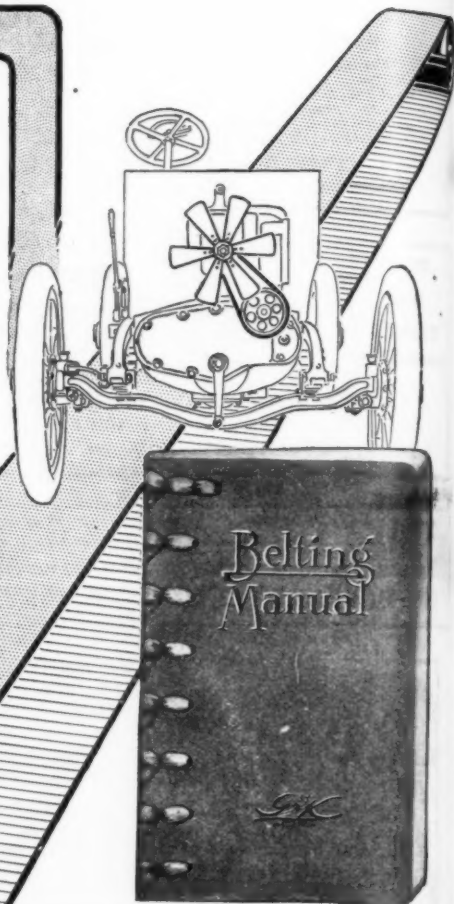
..... we have always found the service from your  
belts to be of the most satisfactory character.

Very truly yours,  
Milford Light & Power Company,

AAM/B.

*C. A. Murray* Supt.  
13

Among other belts furnished these people is  
the 40" 3-ply Main Drive belt shown below,  
which has always given, as Mr. Murray  
says: — "Service of the most satisfactory  
character."



The true value of a belt is determined  
absolutely by its service. When you  
buy a G. & K. belt — whether Main  
Drive, or the smallest Auto Fan belt  
— you always buy

**BELT plus SERVICE**

because we have never swerved from our orig-  
inal purpose to produce the best leather belting  
possible—belting possessing the essential quali-  
ties of pliability, firmness with minimum stretch,  
great tensile strength and durability. Remem-  
ber—there's a G. & K. belt for every drive and  
its use means maximum service.

The "Belting Manual" tells how to select  
belts and how efficient service may be  
derived after the proper selection has been  
made. If you haven't a copy write us on  
your letterhead and one will be sent gratis.

**The Graton & Knight Mfg. Co.**

Oak Leather Tanners and Belt Makers  
WORCESTER, MASS., U. S. A.

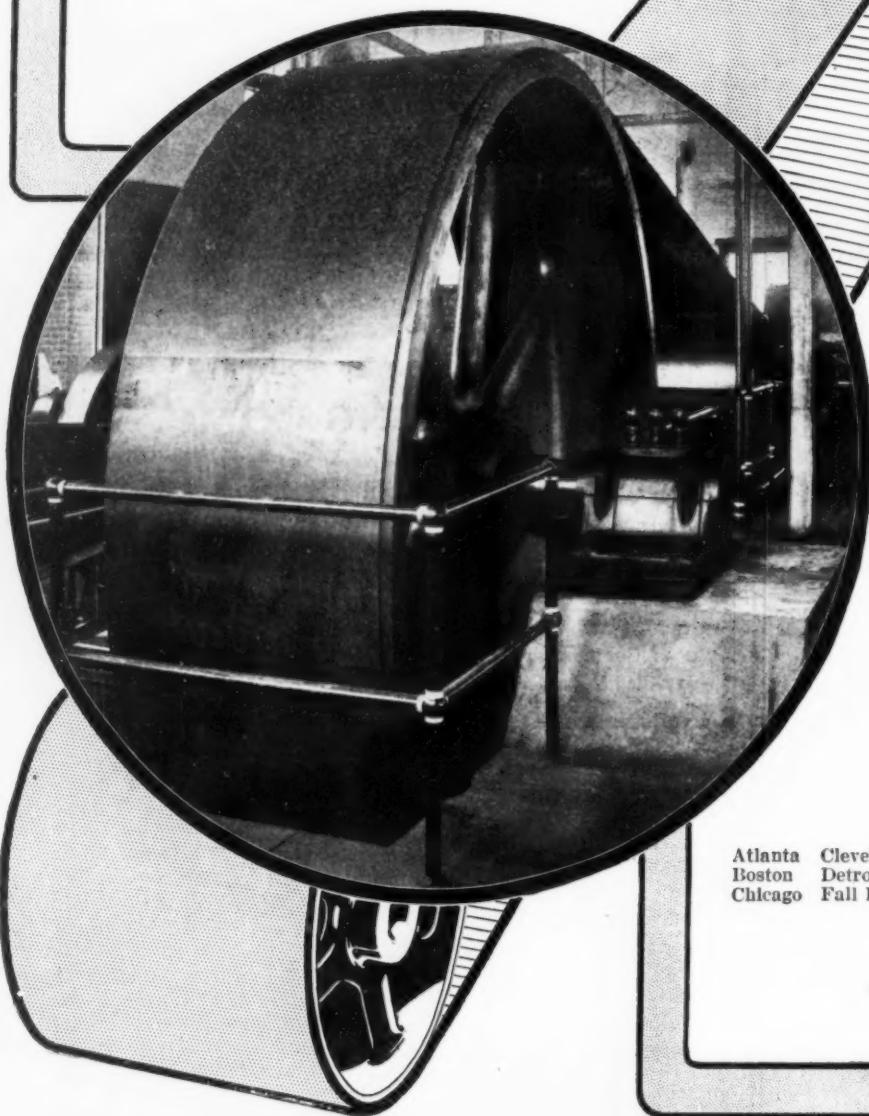
**BRANCHES:**

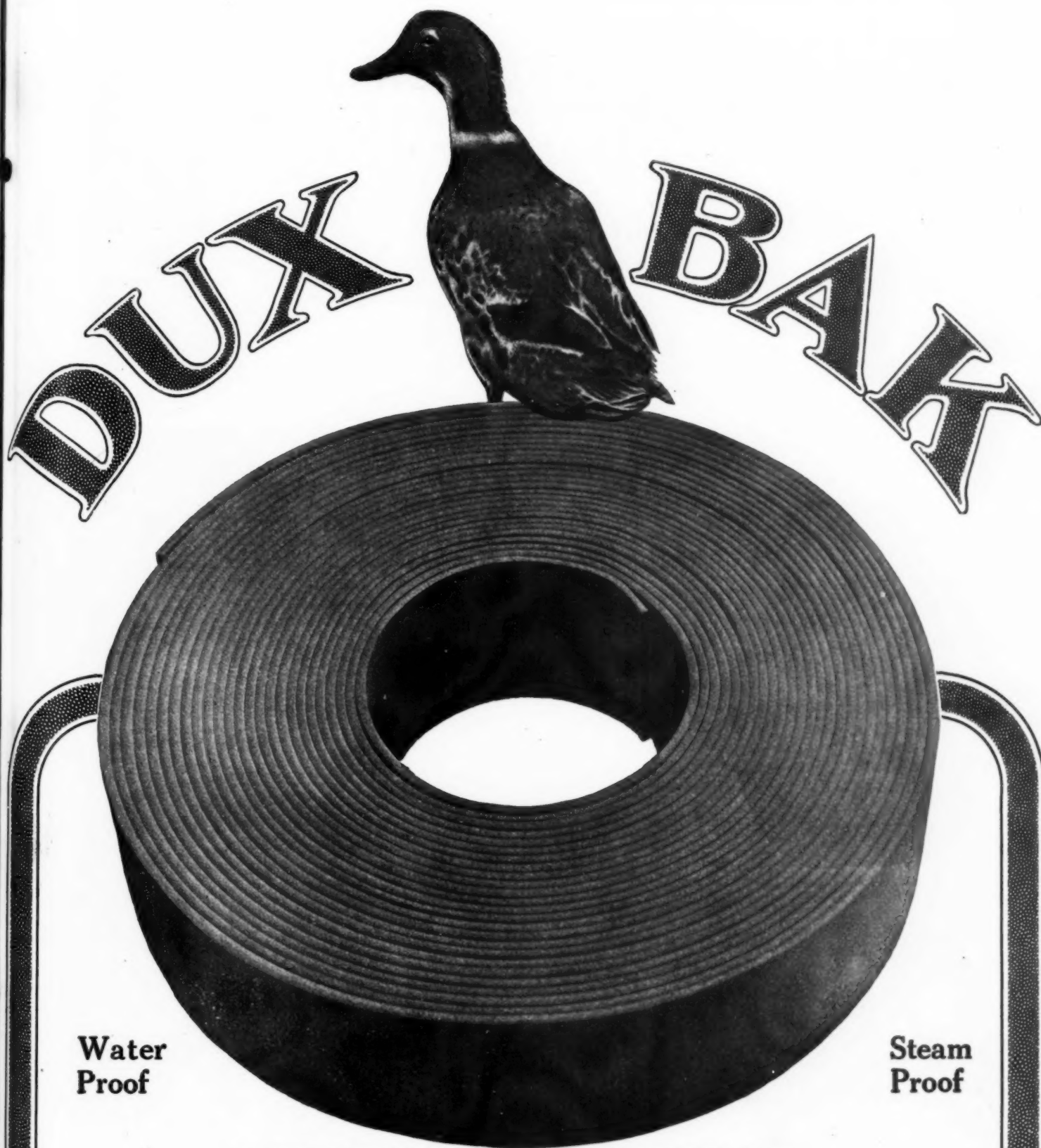
Atlanta	Cleveland	Kansas City	New York	Portland, Ore.	St. Louis
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Chicago	Fall River	New Orleans	Pittsburgh	Seattle	

**Selling Agents,**

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## LEATHER BELTING

### That Needs No Apologies



To Schieren belongs the credit of making the one leather belt which successfully meets the demands of belt users the world over.

No matter where you may be located, whether in the far East, West; in the South or North, or what you may think a perfect belt should do you are justified in specifying "Duxbak" Waterproof Leather Belting.

Interesting literature on the subject of belting may be had by addressing

*Chas. A. Schieren Company*  
ESTABLISHED 1868  
TANNERS  
BELT MANUFACTURERS

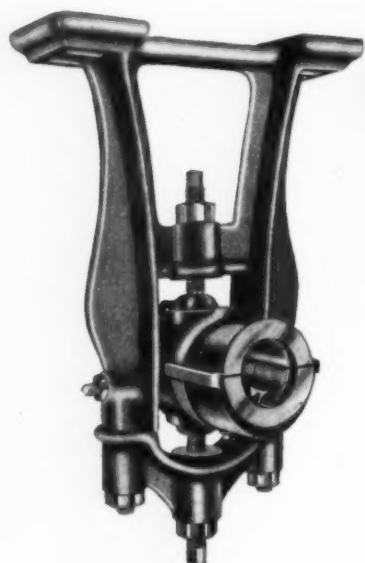
26 Ferry Street • New York, U. S. A.

Chicago.....128 W. Kinzie St.  
Boston.....441-643 Atlantic Ave.  
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Denver.....1752 Arapahoe St.

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New Orleans.....402-404 Canal St.  
The Texas Chas. A. Schieren Co., Inc.,  
106 So. Market St.....Dallas, Texas

HARWOOD R. HALL, Southern Sales Manager, 122 Shore St., Petersburg, Va.





Hangers  
Single and Double Brace

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There is a  
**MEDART**  
product  
for every  
transmission  
need



Post Hangers  
Adjustable and Rigid



Patent Steel Rim Pulleys  
Whole or Split, Single or Double Arm

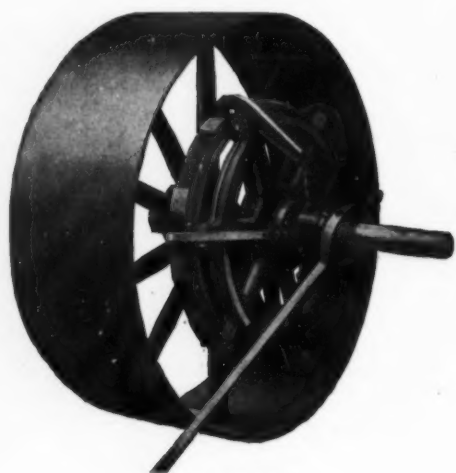


Wood Split Pulleys  
From 3" to 96" Diameter

And our engineering  
department can fit  
the necessary product  
to the need accurately  
and promptly.

Write for catalogues  
and discount sheets.

Address  
Department "H"



Friction Clutches  
All Sizes for Every Requirement



Rope Sheaves  
Noiseless, Economical, Effective

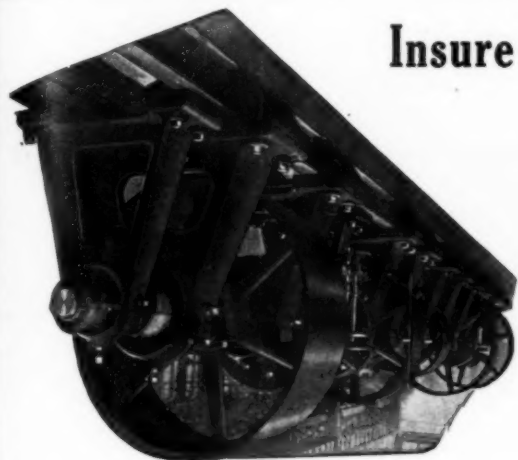
MEDART PATENT PULLEY CO., ST. LOUIS, MO.

Rope Sheaves  
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# MEDART

Sprockets  
Gears

Steel Rim, Cast Iron and Wood Pulleys, Hangers, Shafting, Etc.



Insure the Continuous Operation of Your Plant

## CRESSON-MORRIS TRANSMISSION MACHINERY

has long demonstrated its capacity to withstand the strains and stresses of years of continuous service. Well balanced design, with weight only where weight is needed, and the use of clean gray iron and not "scrap" are characteristic of our machinery.

We make Power Transmission Machinery, Rope Transmission, Machine Moulded Iron and Steel Gears for Heavy Service

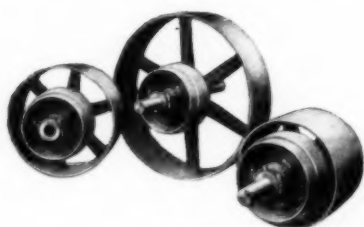
### CRESSON-MORRIS COMPANY

Successors to Geo. V. Cresson Co.

PHILADELPHIA, PA.

Engineers—Founders—Machinists

To keep in touch with Southern Development, read the Manufacturers Record.



Friction Clutch Pulleys for 2500 R. P. M.

## Friction Clutches

Give far better service on machinery than tight and loose pulleys. The saving in belting and prevention of accidents will soon repay the mill owner for their original cost. Don't buy a machine unless it is equipped with a

### Friction Clutch Pulley

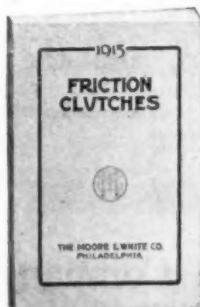
You will find that Moore & White Friction Clutch Pulleys respond readily, stay in good order, and when disengaged release all power.

### Figure Your Friction Clutch Installations

WITH THIS BOOK

SENT  
FREE  
UPON  
REQUEST

WRITE  
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FOR  
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Contains complete information regarding Friction Clutches for all kinds of work.

WEIGHTS, BORES,  
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HORSEPOWERS, ETC.

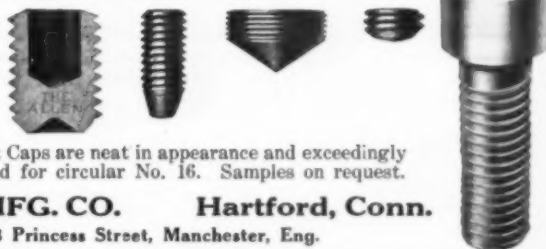
If you have any use at all for Friction Clutches, you cannot afford to be without this book.

### THE MOORE & WHITE COMPANY

Friction Clutch Manufacturers for Thirty Years  
PHILADELPHIA, PA.

### Allen Safety Set Screws

We make a  
SPECIALTY  
OF  
SHORT  
LENGTHS



Allen Socket Caps are neat in appearance and exceedingly strong. Send for circular No. 16. Samples on request.

ALLEN MFG. CO. Hartford, Conn.  
173 Princess Street, Manchester, Eng.

### Goldens' Foundry & Machine Co.

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MANUFACTURERS OF

MACHINE MOULDED PULLEYS  
HANGERS SHAFTING

Couplings, Pillow Blocks, Floor Stands, Collars, Etc.

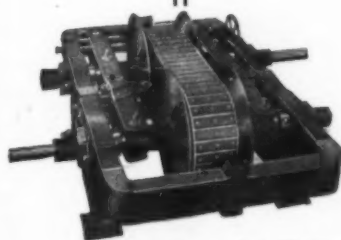
Send for Price List and Discount Sheet

### MACHINERY and SUPPLIES

BELTING AND PACKING

TRANSMISSION and CONVEYING

SMITH-COURTNEY CO. - RICHMOND, VA.



### THOUSANDS Have put their O.K. on "The Reeves Way"

Manufacturers in all parts of the world are using "The Reeves" Variable Speed Transmission. They know that it is an advantage to be able to regulate each machine to any speed desired and without stopping.

They know this increases their output and saves them money. And you know it would do the same for you. Why not investigate today?

Write for Catalog "K."

REEVES PULLEY CO., Columbus, Ind.  
CHICAGO BRANCH—Cor. Clinton and Monroe Sts.



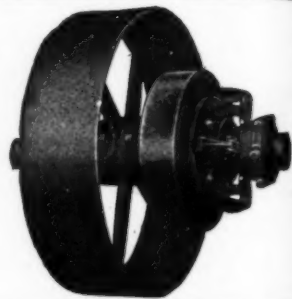


## T. B. WOODS SONS CO., CHAMBERSBURG, PA.

Manufacturing Engineers

### Modern and Approved Appliances for the Transmission of Power

Upon request, our new and complete Catalog No. 35 will be mailed promptly to any user of power.



## Starrett Tools

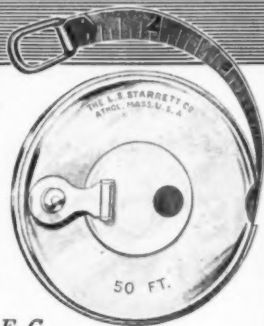
Every machine shop toolroom, and every mechanic should be equipped with Starrett Tools. The line includes steel rules, steel tapes, steel squares, micrometers, calipers and dividers, vernier calipers, surface gages, hack saws, etc. Any tool or hack saw bearing the name "Starrett" is guaranteed by the biggest toolmaking organization in the world.

Send for our 320-page catalog No. 20 E. C., describing 2100 styles and sizes of fine tools.

**The L. S. Starrett Co. Athol, Mass.**

World's Greatest Tool Makers

42-445



## Lowell Crayons Still in the Lead

Although cotton, woolen and worsted mills are more and more exacting, the Lowell Crayon still pleases them; it's still in the lead.

**LOWELL CRAYON CO.,**  
Original Makers

**LOWELL, MASS.**  
Trade Mark on Every Box.

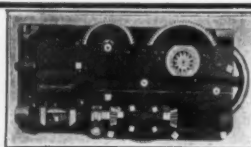
## VITRIFIED GRINDING WHEELS

There is a grinding wheel made for the particular class of grinding you have, and by procuring same your grinding troubles will disappear.

We would be pleased to receive full information regarding the class of grinding that you have.

Catalogue will be sent on request.

**Vitrified Wheel Co., Westfield, Mass.**



### The Apron of Greaves-Klusman Heavy Quick-Change 15-Inch Engine Lathe

Is of double-box form. Gears are cut from Steel Forgings. Feeds are operated by steel friction gears with cast iron frictional surfaces, fitted and securely bolted to same, and feeds are reversed in apron. Feed rod is supported at both ends of apron, maintaining alignment in all positions.

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*If you fail to "Catch On"*

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All over this land concerns that have steam and brains

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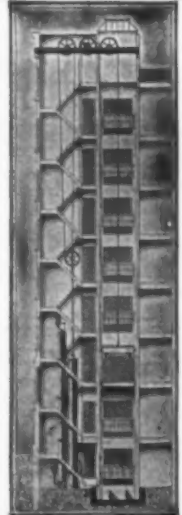


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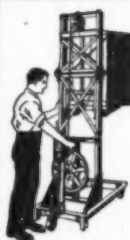
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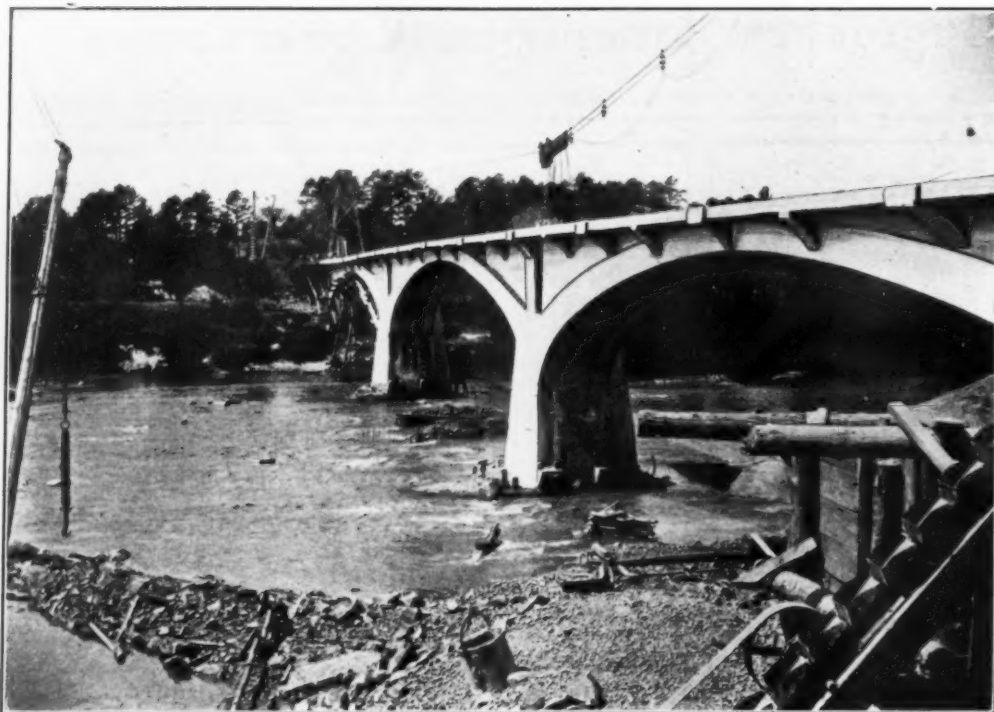
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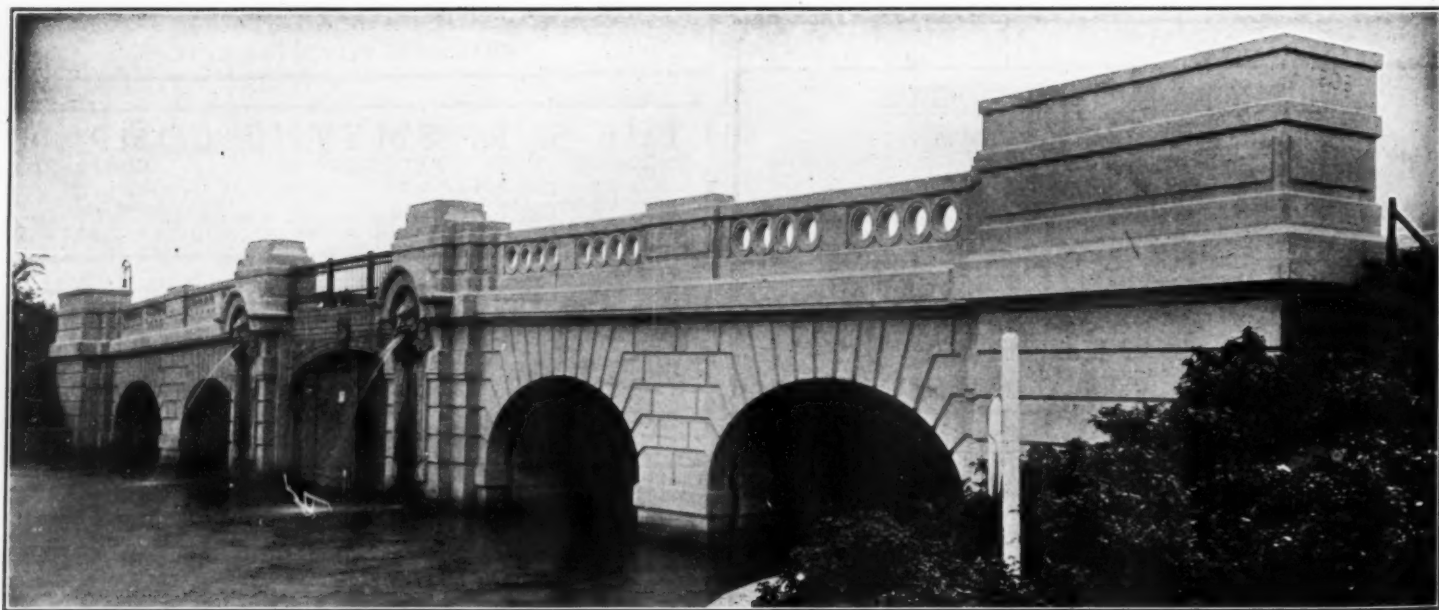
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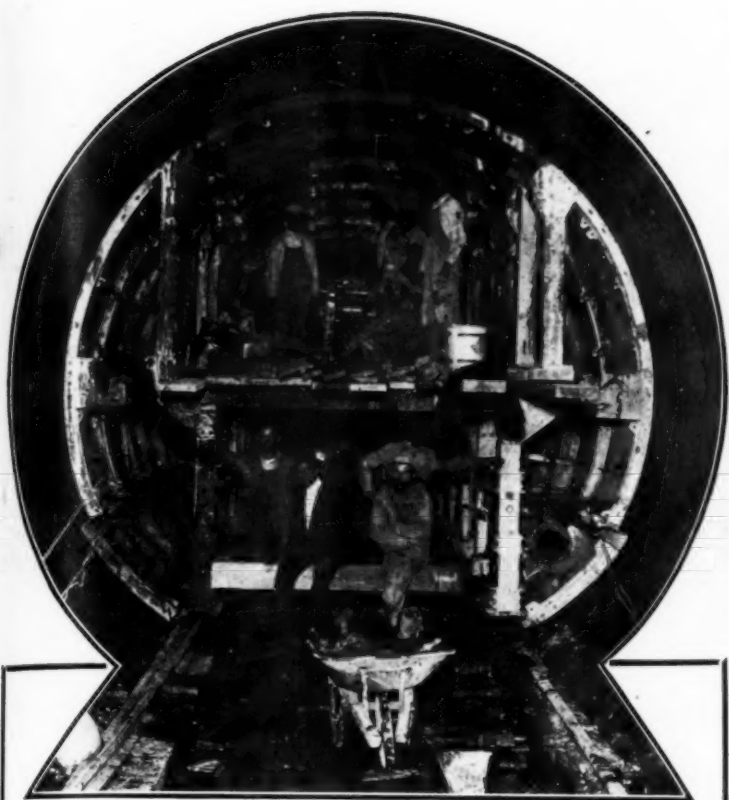
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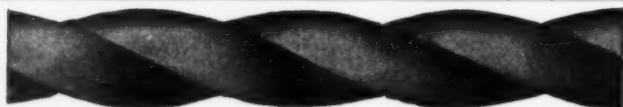
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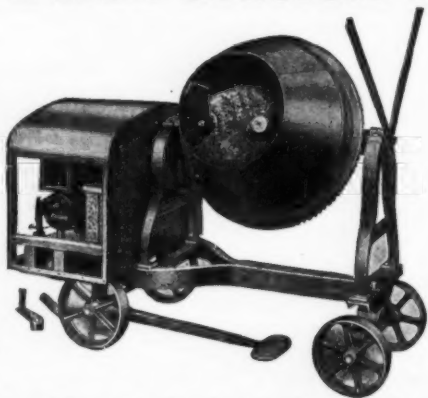
## Van Duzen Concrete Mixer

This is  
a ONE-SIXTH  
yard mixer.

Two wheel-  
barrow loads  
per mix.

Daily  
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50 YARDS.

Mounted  
complete  
with 2½ H. P.  
Engine.

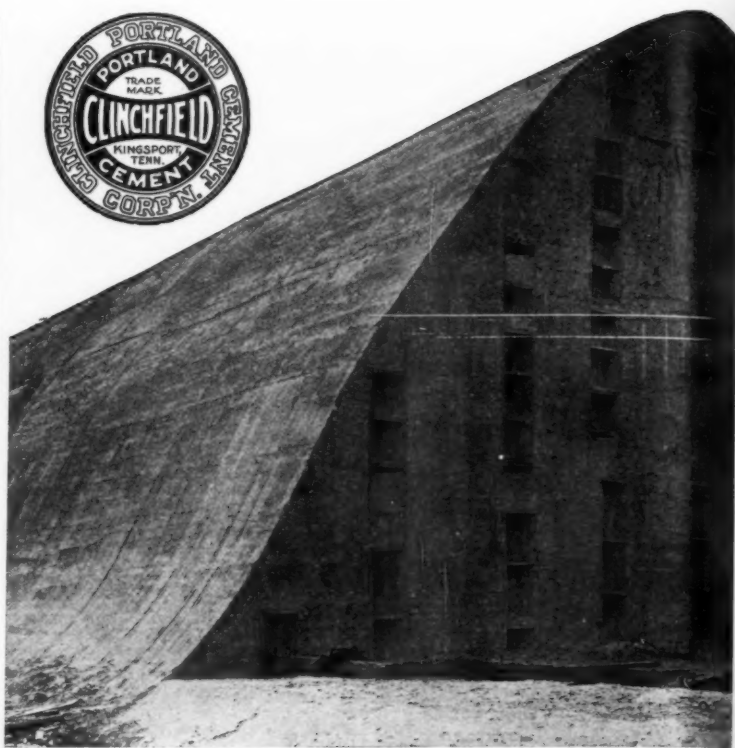


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**110,000 BARRELS**

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Were used in building this big dam for a  
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It was designed and built by the J. G. White  
Engineering Corporation of New York City,  
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you the same complete satisfaction.

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Sales Office and Mills: KINGSFORD, TENN.



EXTERIOR

Hubbard Grocery Co. Building, Charleston, W. Va.

EXTRA HEAD ROOM gained by using the

## Mushroom System of Reinforced Concrete Flat Slab Construction

Note the interior photograph of the building for the Hubbard Grocery Co., shown in the accompanying cuts, which shows heavy loads of boxes and cases piled very near to ceiling, yet giving ample space for air and light to pass over top of same, which would not be possible with deep beams.



INTERIOR

Hubbard Grocery Co. Building, Charleston, W. Va.

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We make all grades of steel to meet various trade requirements, such as Dead Soft Welding and Forging, Threading or Bolt Stock, Soft and Medium Merchant or Machine Steel, Soft Standard, Medium Hard, and High Carbon Steel Bars.

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We make soft, medium, and hard or high carbon concrete bars, rolled from new open-hearth steel billets, which we produce from high-grade pig-iron, made in our own blast furnace.

Can furnish in any lengths specified from 1 to 60 feet.

Please let us hear from you when in the market.

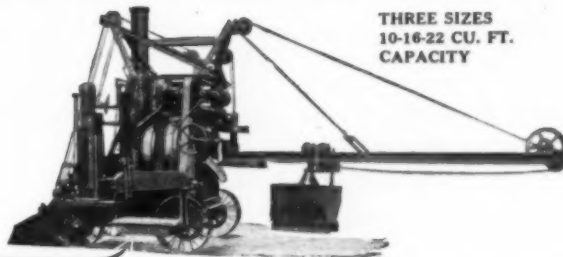
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## AVOID BREAKDOWNS AND LARGE OPERATING EXPENSES THEY EAT UP PROFITS WE REALIZED THIS WHEN WE DESIGNED THE MILWAUKEE STREET PAVER



THREE SIZES  
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From this platform every operation is under absolute control and in full view of the operator.

The powerful forward and reverse traction with differential gear and the power steering device makes it very easy to move the Milwaukee Paver while the machine is in full operation.

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Milwaukee Concrete Mixers are Built in a Variety  
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**The Pure Product—Resists Rust—Conquers Corrosion—Defies Decay**

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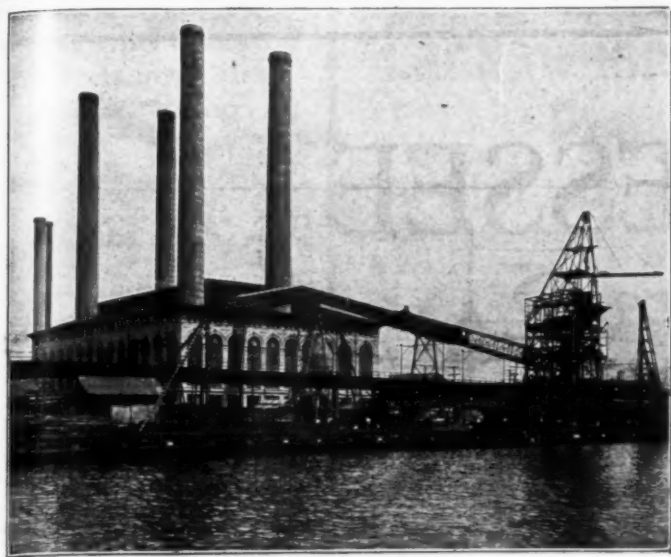
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Send for Bulletin No. 101 showing recent installations of coal and ash handling systems for power plants.

The latest developments in this field of engineering are discussed and illustrated with photographs.

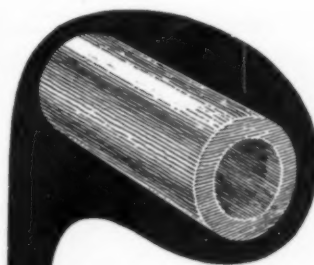
Suspended parabolic concrete coal storage bunkers.  
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THE DARLEY PNEUMATIC SYSTEM OF ASH HANDLING

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31



You never have to oil this wheelbarrow because this stout little self-lubricating bushing is so thoroughly oil-impregnated that it provides the *self-lubricating* feature in

## Sterling Barrows

This bushing will outwear any other bearing ever applied to a barrow.

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The air and moisture are drawn from the pores of the bushing by a vacuum process. Oil is then forced into the cells under pressure. As a result the bushings take up enough lubricant to outlast the life of the wheelbarrow, and the life of a Sterling is surprisingly long. These self-lubricating bushings become so tough that the effect of wear is practically nil.

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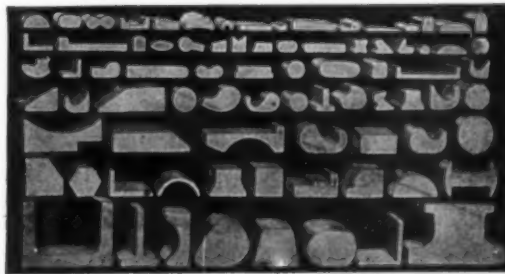
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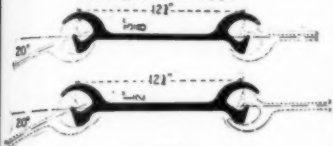
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The following sections offer types and sizes to economically meet any sheet pile construction problem:

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Suitable for general work and especially constructions requiring high tensional and compressive resistance of the pile section. The smallest size is much superior to wooden sheeting in sewer and trench work.

### Plate Type



For light cofferdams, permanent work in cut-off walls, core walls, trenches, etc.

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Preferable where transverse strength of the pile is of primary importance, as in braced or tied constructions. A wall of this piling is very thin in proportion to its transverse strength, having no greater thickness over all at the centers of the arches than the over-all thickness of the interlocked joints. Flattening the back of the web furnishes a long, straight contact with the waling timbers.

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For constructions requiring high tensional and compressive strength, in connection with a fairly high transverse strength. The center-flange acts as a stiffener, increases the section modulus and furnishes means for attaching transverse ties, braces, etc.

## Lackawanna Protected Steel Sheet Piling

Best for permanent installations exposed to severe corrosive action. The protective facing of concrete, adhesively and mechanically bonded to the piling, offers a permanent and perfect protection against corrosion and can be driven down with the steel. Waterproof and rigid.

Complete dimensions, weights, and properties of any section sent on application.

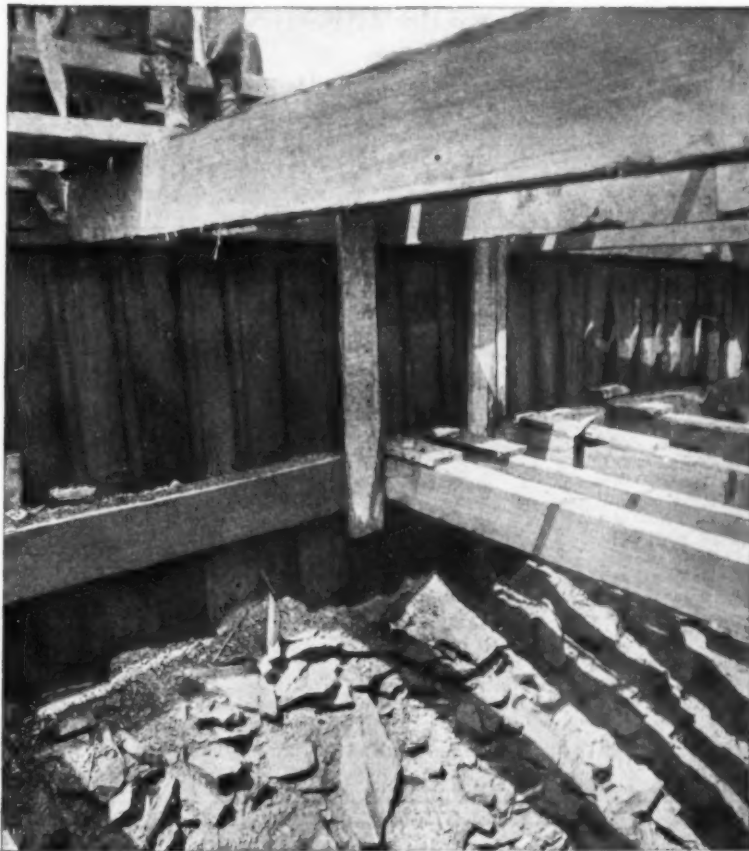
# Lackawanna Steel Sheet Piling That Penetrated Broken Stone

In building foundations for the Hamburg Turnpike Viaduct over Buffalo Creek, some of the Lackawanna Steel Sheet Piling in the cofferdam for the large abutment on the left side of the bridge drove very hard.

Upon unwatering, the conditions indicated by the photograph were shown. The sheet piling sections had penetrated a bed of broken stone which had at some time apparently been dumped from a canal boat.

The great resistance which this material naturally-produced, and the fact that most of the Lackawanna Sheet Piling had previously been installed consecutively in six different places did not impair this cofferdam in any way.

The steel sheet piling joints held well, both as to tensile strength and watertightness, and the great columnar strength of the piling sections is proven by the perfectly straight walls shown in the picture.



Lackawanna Steel Sheet Piling is made in types and weights to meet every condition of penetration, and our engineers are ready to offer every help to make installations successful.

Post yourself by sending for and reading our Bulletin No. 106.

# LACKAWANNA STEEL COMPANY

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181

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Is the Only Bar That Can Be Depended On to Permanently Retain Its Place in Concrete.

THIS SUPERIORITY is due to the SOLID ROUNDED HEAD with DOVETAILED WEB making continuous integral anchorage; ALSO GREATER WEIGHT OF RESISTING MATERIAL.

THE WAINWRIGHT BAR stays firmly in place, without requiring the aid of Clips, Bolts, Prongs or Hooks, and is not a mere shell held in place at intervals, with no intervening anchorage, liable to be displaced by frost, or shock of blows between so-called holding devices.

The recognized merits of the WAINWRIGHT BAR have made it THE STANDARD CORNER BAR FOR CONCRETE PROTECTION, and it has been specified for years by the UNITED STATES GOVERNMENT, LEADING CITY ENGINEERS, RAILROAD OFFICIALS and RESPONSIBLE CONTRACTORS.

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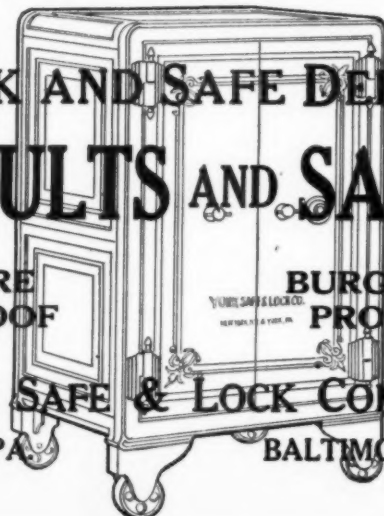
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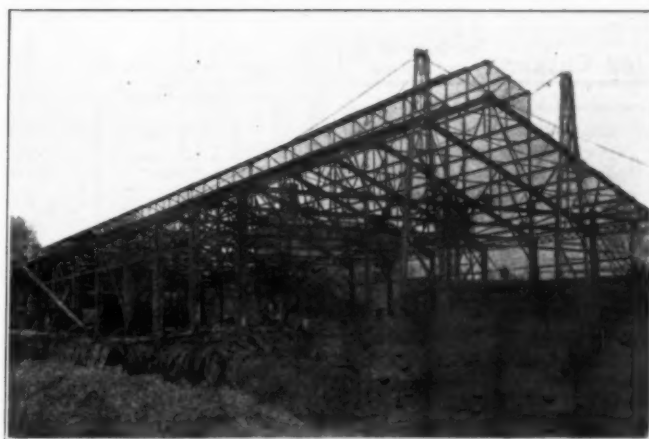
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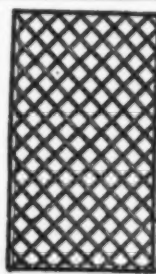
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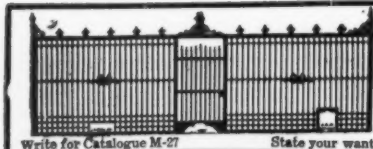


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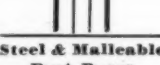
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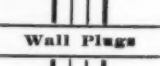
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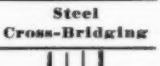
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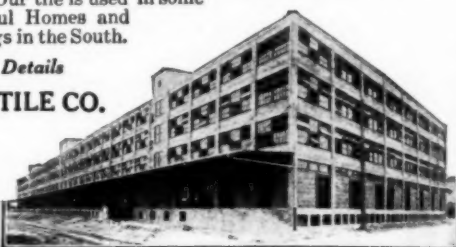
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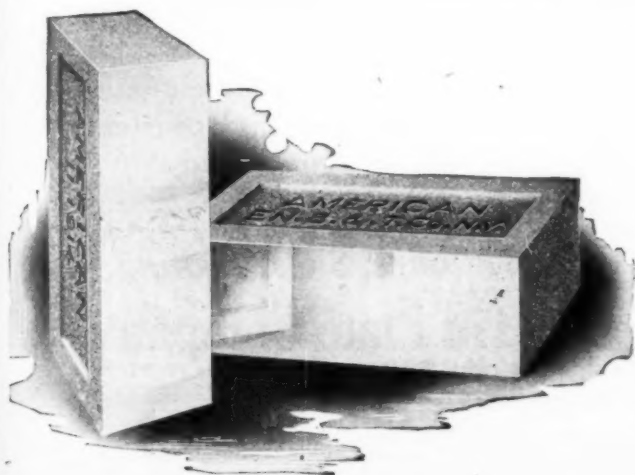
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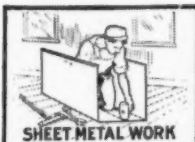
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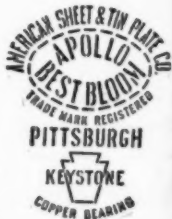
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So we have watched flat slate roofs for thirty years, and finding that they are still as good as new, we now feel that we have a moral right to claim your patronage.

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uniform gauge  
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**T**HIS warehouse was in the centre of the great Salem fire of 1914 which swept over 250 acres of the city. It was built of reinforced concrete and roofed along the lines of The Barrett Specification. In the fierce path of flame, the rain-water conductors and the zinc flashings at the edge of this roof were melted down, but the roof itself was left intact.

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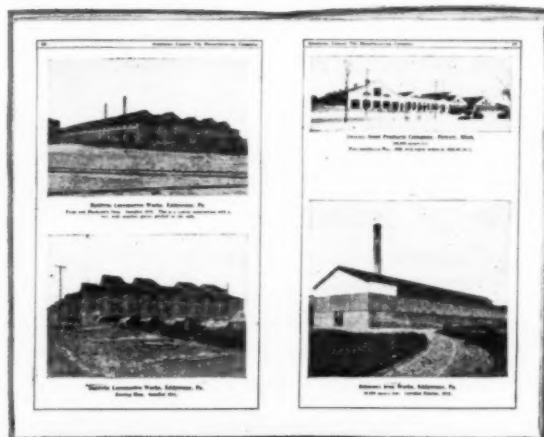
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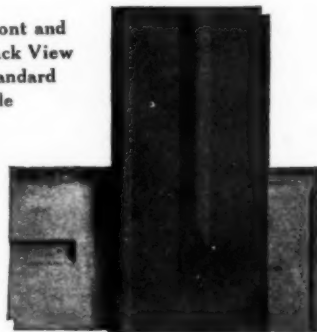
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## 1,000,000 sq. ft. used down at Panama

Front and  
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Standard  
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### Dimensions and Weights: Standard Interlocking Tile

Thickness of tile..... $\frac{7}{8}$  inch  
Color of tile.....Red  
Size of tile.....26x52 inches  
Surface exposed to weather....24x48 inches  
Number of tiles per square of roof (100  
square feet).....12 $\frac{1}{2}$   
Weight per square foot.....13 $\frac{3}{4}$  pounds

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today. State the type of building for which a roof is required. No obligation is incurred. These books will go a long way to helping solve YOUR roofing problem. Remember, "Bonanza" Roofs are erected and amply GUARANTEED by us.

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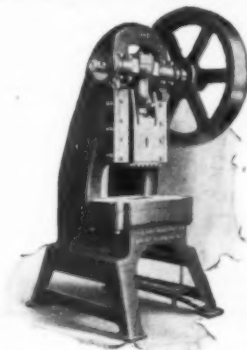
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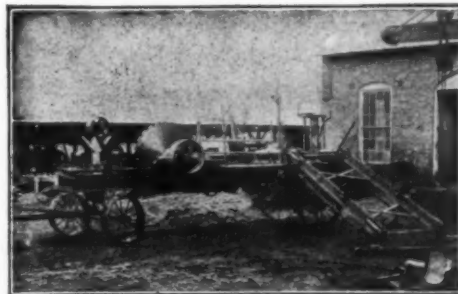
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The dependability and large capacity of the Disc Crusher and the quick and easy adjustment of the discs are reasons which make the Disc Crusher so popular among its users.

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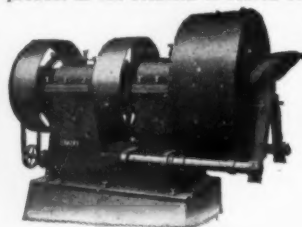
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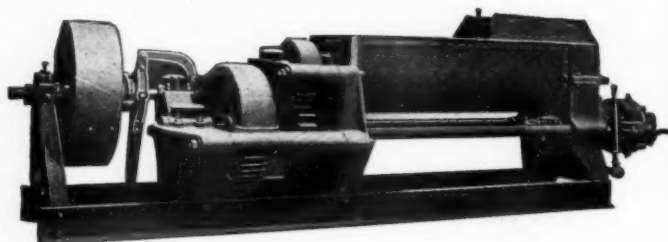
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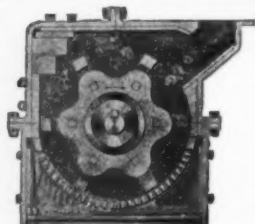
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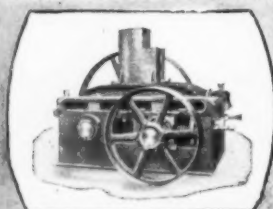
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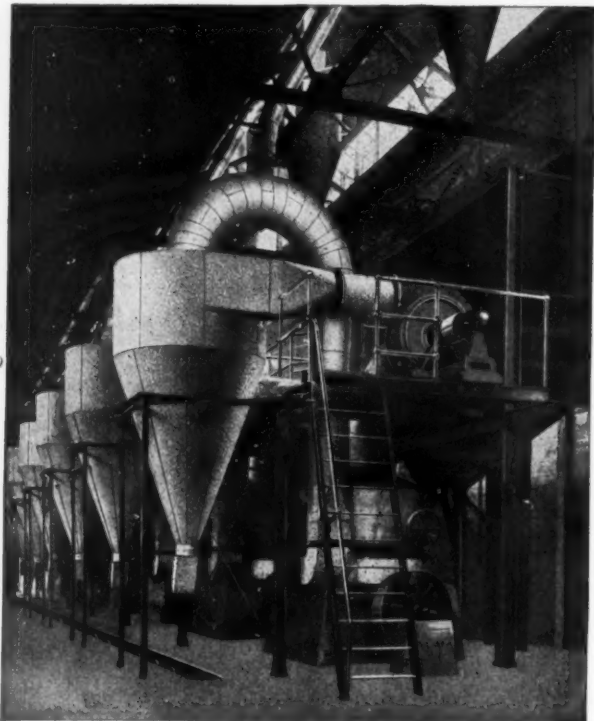
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Raymond System as installed in a Cement Plant for grinding raw material or coal.

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has conclusively demonstrated to many of the largest industrial plants in the country that it provides the cheapest and most practical and effective method of pulverizing coal. Indeed, the Raymond System has proven that it can produce pulverized coal at

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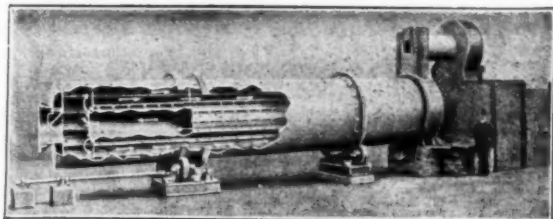
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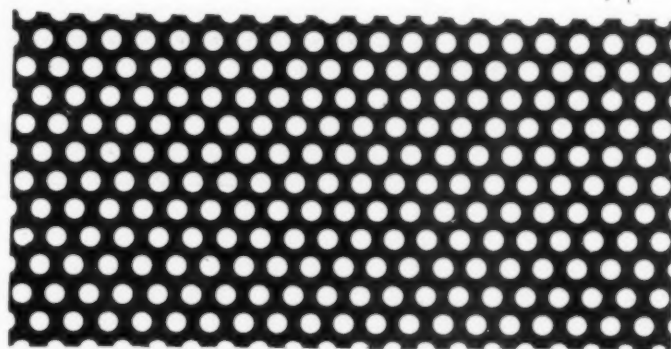
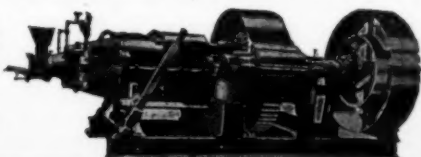
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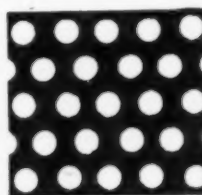
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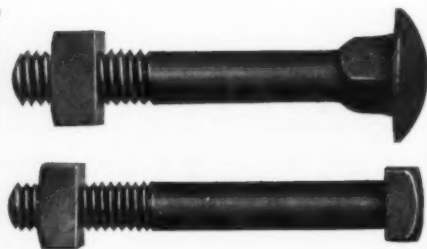
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It's a worth-while saving when figured in terms of a year's assembly cost.

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Write for catalog listing complete lines of nuts, bolts, rivets, etc.

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Suitable for Dogs, Clamps, Wheels, Pinions and other castings  
where strength is required.  
Used almost exclusively for Automobile Work.  
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Trade Mark

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## 100% Security in CYCLONE-WAUKEGAN Property Protection Factory Fence

HEAVIEST  
WIRE USED  
IN ANY FENCE

ACTUAL  
SIZE OF  
WIRE  
AND  
MESH



**SAFETY FOR YOUR FACTORY PROPERTY** is your object in surrounding it with a fence. You take unnecessary risks when you depend upon the board fence for protection. Experience has proven it to be merely a costly make-shift. It is not fireproof; it obstructs the view and affords protection to prowlers; a board removed will admit intruders; it is easily scaled; it harbors inflammable and decaying trash, snowdrifts and moisture. Wire fence has been adopted by the warring armies of Europe as an effective means of defence. It is much more effective in protecting your property against the dangers which threaten it.

### Cyclone-Waukegan Property Protection Fence The Highest Form of Fence Construction

Built of heavy wire, thoroughly galvanized, closely and strongly woven. Stands 6 to 8 feet high with 3 or 5 heavy barb-wire strands at top, which make it impossible for anyone to climb over it.

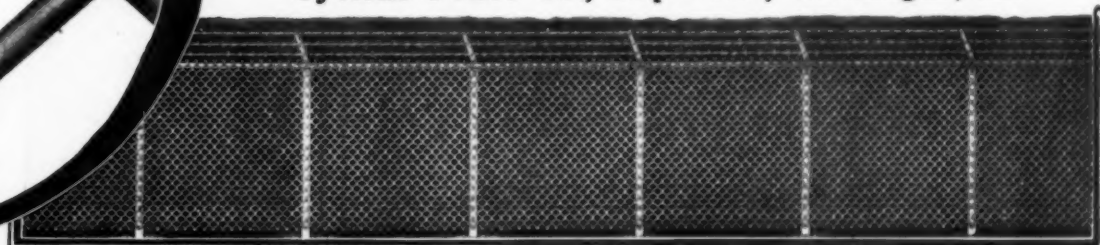
Cyclone Property Protection fences are in use around scores of factories. We are the largest property protection fence manufacturers in America, and have spent years in perfecting our designs and methods of construction. We know the needs of the buyer, and are able to supply them to his entire satisfaction at a money-saving price. We guarantee every shipment.

Our engineer is at your service to solve your fencing problems permanently and economically. We will advise with you regarding your needs without charge.

We build gates to fit any openings for driveways, alleys, switch tracks, etc. Cyclone property protection fence built to fit your grounds.

Let us send you Illustrated catalog giving full information, also views showing factories protected by our fence.

**Cyclone Fence Co., Dept. 132, Waukegan, Ill.**





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**PERMANENT**—No other equal.

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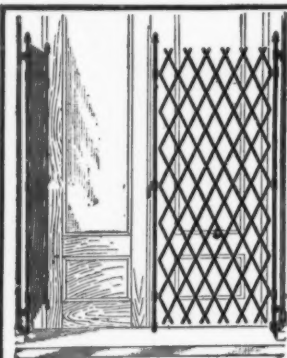
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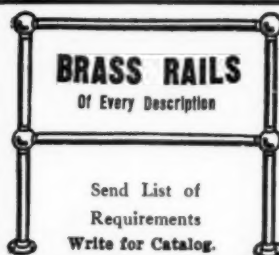
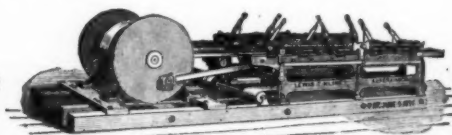
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Of Every Description

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For Theatres, Churches, Offices, etc.

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BRANCH FACTORIES—101 Fourth Ave., NEW YORK, N. Y. 100 W. Lake St., CHICAGO, ILL.



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This cut shows in use the largest wire rope ever made for haulage. It is a **Blue Center Rope**, three inches in diameter, 7810 feet long.

**John A. Roebling's Sons Co.**  
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A WEEKLY SOUTHERN INDUSTRIAL, RAILROAD AND FINANCIAL NEWSPAPER

Trade-Name Registered in the U. S. Patent Office

Vol. LXVII. No. 22.  
WEEKLY.

BALTIMORE, JUNE 3, 1915.

\$4.00 A YEAR.  
SINGLE COPIES, 15 CENTS.

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## THE GEORGIA PEACH.

THE Georgia peach of 1915 has reached the New York market, the first car of the fruit having been rushed to the Eastern market on a special train over the Southern Railway, leaving Atlanta at midnight May 26. The railway expects to participate in the movement of a crop of 500 carloads of peaches, and its officials in conference with representatives of the Fruit Growers Express and the Georgia Fruit Exchange have completed the detailed arrangements for the movement which will mean that at the height of the season the Southern Railway will be sending between fifteen and twenty special peach trains out of Atlanta every night. This movement, in view of the size of the Georgia crop and conditions elsewhere, is a promise of considerable activity in different lines in Georgia to the advantage immediately of the peach growers and the railroads, but indirectly of a number of other interests. It seems bound to contribute to the revival of business and industry in the peach section.

## THE COTTON MOVEMENT.

UP to May 28 American cotton mills had taken 14,146 more bales of cotton than they took in the preceding full year of 12 months. The exports in the 301 days of the present season were 1,112,061 bales fewer than in the full 12 months of the preceding year, but only 796,142 bales fewer than in the 301 days of the preceding year. The quantity brought into sight up to May 28 was 14,704,716 bales, an increase over the same period last year of 95,376 bales. It should be noted that the increase in the takings by American mills is probably to be accounted for by cotton sent to Canada, some of which did not go to cotton mills. The Canadian mills are included by Col. Henry G. Hester, secretary of the New Orleans Cotton Exchange, among Northern mills. The increase in the takings by Northern mills, including Canadian, in the 1913-14 year over such takings in the 1912-13 year amounted to 25,245 bales, and the increase for Southern mills was 70,749 bales. The takings up to May 28 by Southern mills were 85,357 bales fewer than in the same period last year, but the takings by Northern mills, including Canadian, were 2,705,015 bales, or 130,003 bales more than were taken by these spinners in the same period last year. Two more months are to elapse before the close of the present cotton year. If the movement into sight shall within those two months be maintained upon a basis similar to that of the past few weeks, more than 15,000,000 bales of the 1914 cotton crop will be accounted for and

the carry-over at the end of the season will be much less than that expected two months ago.

## OUR ABNORMAL FOREIGN TRADE.

IN the ten months ended with April of the present fiscal year domestic merchandise to the value of \$2,182,633,386 was exported from the United States. That value was an increase of \$164,547,539 over the same period in the preceding fiscal year. The greater part of the aggregate increase was in foodstuffs, as shown in the following table comparing for the ten months of the fiscal years 1914 and 1915 the values of exports of six groups of merchandise, which in the ten months of the present fiscal year represent something more than 50 per cent. of the aggregate value of merchandise exports in the ten months:

	1914.	1915.
Breadstuffs . . . . .	\$131,704,134	\$484,237,635
Cottonseed oil . . . . .	12,271,232	17,541,637
Cattle, hogs, sheep . . . . .	848,163	396,311
Meat and dairy products . . . . .	113,211,641	154,972,707
Cotton . . . . .	566,877,007	330,494,409
Mineral oils . . . . .	124,872,517	105,693,530
	\$949,784,694	\$1,093,336,229

In 1915 the aggregate value of these six groups of exports was \$1,093,336,229, an increase over the ten months of 1914 of \$143,551,531. This increase was in spite of a decrease from \$566,877,007 to \$330,494,409, or by \$236,382,598, in raw cotton; from \$124,872,517 to \$105,693,530, or by \$19,178,987, in mineral oils, and from \$848,163 to \$396,311, or by \$451,852, in cattle, hogs and sheep, a total decrease of \$256,013,437. There were increases from \$131,704,134 to \$484,237,635, or by \$352,533,501, in breadstuffs; from \$113,211,641 to \$154,972,707, or by \$41,761,066, in meat and dairy products, and from \$12,271,232 to \$17,541,637 in cottonseed oil, a total increase of \$399,565,972.

The great falling off in the value of the exports of cotton and of mineral oils is explained by the restrictions placed upon the marketing of these American products in countries of continental Europe, while at the same time the increase in the value of exports of foodstuffs is explained by the necessities of some of the battling European nations. The exhibit is a fair illustration of the abnormal conditions in American foreign commerce brought about by the war, and it should induce caution and conservatism in framing theories upon which permanent policies in foreign commerce may be predicated.

For instance, it is gratifying in a certain sense to believe that the close of the present fiscal year will show a difference of about \$1,000,000,000 between the value of all our merchandise exports and the value of all our merchandise imports, the difference indicating that this country has sold abroad \$1,000,000,000 worth of goods more than it has bought abroad. That favorable trade balance is about \$335,000,000 greater than the former high record export balance in the fiscal year 1908, as the National Department of Commerce points out. But other facts should be considered in this connection. In the ten months of the present fiscal year the aggregate foreign commerce had a value of \$3,699,737,817, which is but \$81,848,640 greater than the aggregate of the ten months of the preceding fiscal year. As has been shown, the increase was largely due to the extraordinary demand for foodstuffs abroad, the aggregate for breadstuffs, cottonseed oil and meat and dairy products advancing from \$257,187,007 to \$656,751,979, or at the rate of 155 per cent. On the other hand, with an aggregate increase in the value of all merchandise exports of \$179,773,583, there was a decrease in the value of imports of

\$197,924,943, of which \$115,900,600, or about 58 per cent., was in dutiable exports upon which revenue for the support of the Government depends in part. Therefore, any plan looking to permanency in increase in our foreign commerce, which involves, of course, a continuance of exchange of our products for the products of other lands, must look to the conservation of import trade upon a basis that will continue to yield adequate revenue, as well as to the maintenance, wherever possible, of our position as to exports in markets that have been temporarily enlarged in the stress of war, as well as the cultivation of new foreign markets.

No one can possibly forecast at this time the situation that will develop at the conclusion of the foreign war. No one can state with any degree of accuracy whether some of the warring nations will be greater buyers from us than greater potential sellers to us, and in that potentiality rendering more difficult our task of competing with them in the newer markets of the world. It is the part of wisdom for us to be prepared to meet any situation in foreign commerce that may develop, and in the meantime not to neglect the opportunity in the fact that the population of the United States is increasing at the rate of about 1,500,000 a year, and to that extent widening the home market for American products—a widening unsurpassed by the possibility in any foreign market.

## NEW ORLEANS PORT FACILITIES.

THE sale last week of \$1,250,000 worth of bonds by the Board of Commissioners of the port of New Orleans, which will devote the proceeds to the immediate erection of a modern grain elevator, marks another stage in the creation of facilities for expediting commerce that will give New Orleans a unique position among the ports of the United States. Fourteen years ago the Board of Commissioners of the port took over the public wharf system of the city, and it now controls nearly 42 miles of river frontage. Within its domain are more than a score of wharves valued at \$2,197,887, having an area of 4,048,590 square feet and an aggregate length of 4.67 miles, and upon these wharves are steel sheds valued at \$1,526,683, covering 2,603,057 square feet, and having an aggregate length of 3.64 miles. Connected with the wharf system are 4.28 miles of paved roadways ranging in width from 28 to 40 feet. Impressed by the manifest natural advantages to New Orleans in its location, the Board of Commissioners, after prolonged and careful study of all the conditions and consultation with engineers, entered not many months ago upon the development of a broad and comprehensive plan of improvement. Under a constitutional amendment, approved by the people of Louisiana in the fall of 1910, authorizing the Commissioners to issue bonds for the erection and operation of warehouses and other structures necessary to advance the commerce of the port, they approved an issue of \$3,000,000 of bonds, which were purchased by three New Orleans banks in May, 1914, and shortly after contract was awarded for the construction of cotton warehouses and a compress building after plans of Ford, Bacon & Davis, engineers. Work upon these improvements in connection with the terminal yards of the Public Belt Railway has been pushed, and now there is to be added the grain elevator, which will also be under the control of the Commissioners of the port. The elevator, with a capacity of 1,250,000 bushels, is to be erected of steel and concrete construction upon land owned by the commission and adjoining the cotton warehouses, so that, by means of loading galleries from the elevator along the front of the cotton dock, vessels may load cotton and grain at



the same time. Details of the building as reported by Commercial Agent Edwin E. Judd, are as follows:

It will embody the latest principles of design as tested in some of the largest elevators constructed during the past two or three years. The grain will be stored in cylindrical concrete bins, the number of which may be increased indefinitely as the demands on the elevator grow. The working-house and the shipping structures will be distinct units, permitting the greatest flexibility for extension. The working-house will have cleaning, drying and clipping facilities of large capacity, and will include a plant for husking and shelling corn to facilitate the large corn traffic through this port. The handling plant will be so arranged as to permit handling grain in any direction—to or from cars, boats or storage tanks—with equal facility. Particular attention is being given to arrangements for handling grain moved down the Mississippi River by barge, as it is believed that such traffic will play a large part in the near future. The handling plant will include a six-track shed four cars long and a shipping gallery capable of loading ocean steamers 600 and 700 feet long at the rate of 30,000 to 60,000 bushels an hour.

It is pointed out by Mr. Judd that, with the advantage of having the entire harbor under the absolute control of a State board, each new construction project is regarded as simply a part of the unified whole. The Commissioners of the port are considering the erection of storage warehouses for coffee, rice and sugar and a lumber-handling plant, and that the firm of engineers studying for the Commissioners the needs of the port are considering the construction of a canal connecting the Mississippi River and Lake Pontchartrain which will enlarge the harbor front property within the limits of the city and offer sites on the water for warehouses and factories. In the MANUFACTURERS RECORD of January 7 was published an interesting article by the engineers, Ford, Bacon & Davis, telling of the cotton warehouse and terminal project. Only recently an inspiring address was made before the New Orleans Association of Commerce by George H. Davis of the firm of engineers, discussing the structures, equipment and advantages of the port. This address, which has since been published in pamphlet form, was the result of profound study of the history of commerce in the Mississippi Valley as bearing upon New Orleans, and showed a remarkable grasp upon all the problems, physical and financial, connected with the subject. Indeed, the address was almost prophetic, especially in the following statement:

In general, the transshipment, storage and industrial terminal facilities of the harbor of New Orleans, either completed, in course of construction or under investigation, should reduce the charges on commerce at this port between 25 per cent. and 50 per cent. from those of the present decade and place them as low or lower than any other port not supported by direct taxation. In the case of the cotton warehouses and terminal and in the general handling of cotton under the new system proposed a reduction over present costs of approximately 40 per cent. should be realized. Extending these percentages to the handling of other principal commodities, such as grain, forest products, tobacco, coffee, sugar, fruit and provisions, in each case, if modern equipment with approved methods of operation are used, similar reductions in handling costs can be attained.

Another point made by Mr. Davis, applicable to practically every port, is the advantage of including within the limits of any port an industrial terminal, by which is undoubtedly meant the establishment of industries manufacturing for export. In the past and at present the phases of commerce at New Orleans are of special interest to practical economists everywhere. The realization of the plans now being carried out will make the situation even more interesting.

#### THE INLAND WATERWAY.

WITH the exception of a link between Galveston and the Sabine River, the intercoastal canal, that will connect by a safe inside water route Corpus Christi and New Orleans, is practically complete. This canal is really only a part of a greater project which, when completed, will follow the line of the Gulf and Atlantic coasts from the Rio Grande to Massachusetts Bay, taking in a series of sounds, bays, rivers and artificial waterways into which many streams penetrating into the interior empty, and providing the means of water-borne traffic of a volume difficult to estimate at this time. In the

attention paid during the past fifty years to the construction of steam railways the importance of our navigable streams as elements in the full development of inland commerce and foreign trade has been lost sight of to some extent, and, because facilities provided by the improvement of streams by the General Government have not been utilized as they should in some cases, opposition to the proper handling of the rivers has here and there developed.

But a new era seems to be dawning. The motor-boat and the self-propelled barge have demonstrated in a striking manner the availability of the inland waterways for profitable traffic, and more and more hard-headed, practical men are studying the situation with a view to making the most of it. The bringing of water transportation to within a few miles of the heart of the manufacturing center of the Birmingham district, through the completion of the \$11,000,000 Warrior River damming and locking; the proposed combination of improvement in navigation and utilization of hydro-electric power of the Tennessee River, affecting more or less the fortunes of half a dozen Southern States rich in natural resources; the approach of inauguration of modern service on the rivers between Macon and Brunswick, Ga.; the near completion of important river and canal improvements in North Carolina; the canal connection across Florida; the Houston ship channel; the Sabine-Neches work; the well-advanced plans for barging on the Mississippi from St. Louis and other up-river points to New Orleans—all of these indicate the lively interest in the question of waterways improvement in the South, and they are directly or indirectly connected with the Texas-Louisiana intercoastal canal, to further which a meeting is to be held at Galveston on June 21.

Related to the question, too, is the inclination manifested to increase the shipbuilding industry in the South, an industry for which that section is admirably equipped as to materials, but one calling for legislation of the right sort to bring it within touch of its great possibilities. To a great extent many of the natural gifts of the South have not been accepted by the people that would be most benefited by them. As much as diversification in agricultural and manufacturing industry has developed in recent years there, it has virtually been largely pioneering in character, revealing the tremendous possibilities. Any undertaking tending to make those possibilities realities, therefore, means the manifold of opportunities for the employment of thousands of men in productive enterprises. In constructing the comparatively short stretches of canals necessary to complete the chain of intercoastal waterways, in building vessels to ply upon them, in obtaining the materials for such vessels, in supplying the cargoes that they will distribute to distant points, are a few of the opportunities for the South.

#### GREAT NAVAL AND MERCHANT MARINE BUILDING IMPERATIVE.

THAT this country must without delay build a great navy commensurate with its position in world affairs, and that it must with almost equal promptness create a merchant marine equal to the handling of its vast commerce, which, however, is but in its infantile stages compared with its future, are now self-evident facts. The need is recognized by all people of all classes, and there is a determination that this need shall be filled.

The talk about Government-owned steamship lines meeting the commercial needs of the times indicates that the magnitude of the work to be done is not fully realized in some quarters. To spend \$30,000,000 or \$40,000,000 for Government-owned lines would simply be an inadequate effort to meet a condition which will require the investment of many times that amount to equip our country with even a moderate mercantile marine. Government ownership would be fatal to the broadest development of our shipping unless the Government spent not \$30,000,000, but more nearly \$300,000,000, for it would be utter folly to expect private capital to engage in shipowning in competition with the National Government.

Given proper laws that put our shipping on a par as to operating costs with other countries, and mail pay contracts in keeping with the situation, private

capital would soon spend far more than \$20,000,000 or \$40,000,000 in shipbuilding.

Moreover, the Government must embark upon a naval-building program and the enlargement of all our national defenses on a scale which will make the expenditures of the past seem very small. We cannot stop at a few hundred million dollars. No narrow policy of economy can now prevail. The world has changed, and what would have seemed even a wicked waste twelve months ago now becomes an absolute necessity. All this, regardless of our immediate international complications, inevitably means the necessity of raising increased revenues, the restoration of duties on many articles that are now admitted free, and doubtless large bond issues for extraordinary expenses. Our shipyards must be made to hum with activity, and new shipyards must be created.

Our iron and steel industries will naturally feel the impulse of this marine activity. The present situation opens to us vaster possibilities for trade, for world-commanding influence and for increase in wealth and commerce beyond all that the most daring dreamer could have foreseen. But this situation also brings responsibility as great as is the opportunity. We must not stagger before the cost.

#### SUGGESTION IN THE DYESTUFF SITUATION.

ANNOUNCEMENT to the effect that Julian S. Carr, Jr., president of the hosiery mills at Durham, N. C., one of the largest users of dyestuffs in North Carolina, had closed a contract with a concern in New York State which insures the mills a supply of dyestuff sufficient to last them for more than a year, points toward a solution of a problem which has been pressing upon textile and other manufacturing lines ever since the main source of supply of such materials has been cut off by the war. The announcement bears out a review of the dyestuff situation in the United States presented a short time ago by Commercial Agent Thomas H. Norton of the National Department of Commerce. Summarized, some of his findings are:

The existing American coal-tar chemical industry making every effort to increase its output and rapidly overcoming the handicap of previous dependence on foreign intermediates.

An ample supply of American coal-tar crudes assured for the prospective needs of dyestuff manufacturers.

Manufacture in this country of aniline and other coal-tar intermediates from American crudes started upon a generous scale by all existing dyestuff works and by five new plants especially devoted to this line, with several other plants being erected or contemplated.

Foundations for a genuine American coal-tar chemical industry apparently being made, capable, however, of supplying in the current year only a small share of the American demand, but susceptible of steady and relatively rapid expansion.

No provision yet made for the manufacture in this country of alizarine or of synthetic indigo.

The American consumers of artificial dyestuffs promptly taking steps to use natural dyestuffs and mineral colors, while the output of American dyes is necessarily limited, and American manufacturers of natural dyestuffs providing ample instruction in approved modern methods of using vegetable dyes.

Consumers of dyestuffs resolutely adjusting manufacturing processes so that they may be prepared to revert, if necessary, to the use of natural dyestuffs or mineral colors with a minimum of friction, and consumers of dyed materials philosophically accommodating themselves to a prospective limitation in colors.

Mr. Norton has learned from numerous interviews with participants in the preliminary stages of the evolution of a national dyestuff industry that there is great confidence in the final success of the undertaking, provided that the capital invested shall not be exposed hereafter to anything but open and fair competition with foreign manufacturers of dyestuffs. He adds:

Capital hesitates under existing conditions to embark heavily in an undertaking when there is a strong probability, if not a certainty, that upon the return of normal conditions an incipient half-developed American industry

would be by foreign sources, there is need in making now important on American state of foreign unfair competition. Whether in this direction there seen capital is chemical and technical divided this

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would be exposed to prolonged and relentless underselling by foreign competitors possessing almost boundless resources, financial and technical.

There is a very strong conviction among those experienced in the industry and among those just entering it that the majority of the coal-tar intermediates required in making dyes, and the great bulk of the coal-tar dyes now imported from Europe, can be profitably manufactured on American soil under existing tariff rates if there is adequate statutory protection against the so-called "dumping" of foreign wares; or, in other words, protection against unfair competition in restraint of trade by persons or firms outside of American jurisdiction.

Whether public opinion will recognize general legislation in this direction as of urgent necessity remains to be seen. There seems, however, to be no question but that ample capital is available for the needs of an American coal-tar chemical industry, and that a large measure of enterprise and technical skill is ready to enter the new field, provided this one serious obstacle is definitely removed.

In these words of Mr. Norton is the suggestion to thinking men of the United States, regardless of party affiliations or political philosophies, having wider application than merely to the dyestuff industry. The natural hesitation of capital to venture into a field temporarily promising, but liable to re-occupation from abroad, thus bringing about a loss of the capital, is akin to the hesitation of other capital to enlarge its operations in existing lines of industry in the face of the possibility that an unrestrained flood of selling from abroad may cripple American manufacturing industries. Almost as important as broad plans for expansion of American selling abroad is the preparation that should be made against the incursion into American markets of foreign wares selling at prices with which American wares cannot possibly compete. This preparation involves a careful study of the whole field of production in this country, both of raw materials and finished goods, and of natural or artificial handicaps under which existing industries labor as a basis for definite action, legislative or other, that will tend to eliminate these handicaps. This study must concern itself with the tariff, with internal transportation, with demands of labor, and with practices of capital, individual or corporate. The material for it abounds. The task of preparation cannot begin too soon.

### Pyrite and Sulphuric Acid in 1914.

The production of pyrite in the United States in 1914, according to W. C. Phalen of the United States Geological Survey, was 336,662 long tons, valued at \$1,283,346. In 1913 the production was 341,338 long tons, valued at \$1,286,084. Virginia is the leading State in both production and value. The output of this State diminished slightly in 1914 as compared with 1913. The imports of pyrite for consumption during the calendar year 1914 were 1,026,617 long tons, valued at \$4,797,326. These figures show a notable increase compared with the imports of 1913, which were 850,592 long tons, valued at \$3,611,137.

According to actual returns for the year 1914, the production of sulphuric acid in the United States was 3,762,417 short tons of 50-degree acid, valued at \$24,163,331. This is exclusive of 21,993 short tons of fuming acid, valued at \$316,596, but the figures given above include by-product acid—that is, acid obtained in the smelter industry. The acid produced at copper and zinc smelters in 1914 amounted to 950,798 short tons of 50-degree acid, valued at \$5,190,293.

### For an Alabama Packing Plant.

Plans are being formulated for the organization of the Alabama-Georgia Packing Co., with \$60,000 capital, to establish a general plant to include abattoir, cannery, Packing-house, 60-ton refrigerating equipment, etc. An initial annual capacity of 20,000 head of hogs and 50,000 head of hogs is proposed. James L. Glass, representing the Public Utilities Co., Trenton, N. J., and others are interested, and they intend to build at Phenix City, Ala., opposite Columbus, Ga.

### A Correction.

In our issue of May 27 we inadvertently published the name of the American Bag Co. of Memphis, Tenn., as the American Bank Co.

## Water's Relation to Wealth and Welfare

By ALBERT H. SCHERZER, President Scherzer Rolling Lift Bridge Co., Chicago.

The MANUFACTURERS RECORD, in harmony with its constructive policy, has frequently called attention to the great wealth latent in the rivers of the United States and forcefully advocated the control of the waters in rivers by the Federal Government for useful beneficent purposes instead of allowing them to be devastating and destructive to life and property.

The old-fashioned expensive idea that a river is merely a great national sewer or means of removing fresh water from the interior of a country into the sea is rapidly becoming obsolete, and the newer idea that a river is one of the principal sources of wealth to a nation when its waters are controlled and used for production is finding expression in all the national political platforms forcefully demanding immediate action by the Federal Government.

Rulers and statesmen for centuries past have sought wealth in gold ores and silver ores and in modern times in copper and iron ores and petroleum, and have generally overlooked the greater wealth to be obtained from water. The world is now learning that one of the greatest sources of wealth, the fresh water contained in rivers, has been largely neglected through lack of knowledge of its great value and numerous beneficial uses.

About 20 years ago Sir William Wilcox published the idea that the waters of the Nile River, Egypt, should be stored by means of dams and used to insure the production of crops. He referred to the waters of the Nile as liquid gold flowing into the sea. Able financiers and the Government grasped the thought quickly, provided the funds, and within a few years the Assouan Dam, costing \$15,000,000, was constructed under the charge of the eminent engineer, Sir Benjamin Baker, bringing profitable employment and great wealth to Egypt. Lands quickly gained more than \$1,000,000,000,000 in value. The agriculturalist can now raise three crops a year, because sunshine is plentiful and sufficient water can be obtained from the Government at the time when needed by paying a moderate charge. Egypt was quickly lifted from comparative poverty, railroad properties greatly increased in their earning power and the Government secures a much larger and more certain revenue.

The returns each year, directly and indirectly, are greater than the cost of the dam. The dam is built to endure and produce returns for centuries. As a by-product the Government has planned to use the surplus water flowing over the dam to develop electrical power for general use and to obtain nitrogen from the air to fertilize the soil. There are few, if any, gold or iron mines that can match these great financial returns.

The United States is more highly civilized than Egypt, and therefore has greater possibilities of quick returns from river waters because it has not only more water available but more people to control it for use along the Mississippi, the Alabama and other rivers which are now conveying vast volumes of fresh water (more than 1,000,000,000,000 tons annually) through the Southern States into the sea. The value of these waters when extensively used for production is so great that the wealth produced by all the gold and silver mines of the world to the present time appears small in comparison.

Modern chemistry discloses why water is so valuable and precious. Water is the vital substance necessary to produce all forms of life on the earth—

1. Products growing from the soil are in weight about 10 to 95 per cent. water.
2. Animals are in weight about 75 per cent. water.
3. Human beings are in weight about 75 per cent. water.

Without water none of these valuable products can be manufactured or exist on earth. It requires approximately 500 to 1000 tons of water to produce or manufacture one ton of soil product by means of sun heat and light. A finished soil product in the form of wheat, rye, oats, corn, grass, potatoes, the costly orchid or the giant tree contains an important percentage of water, ranging from about 10 to 95 per cent. in weight.

Animals by consuming soil products and many tons of water additional develop bodies valuable as food for human beings; they are composed approximately 75 per cent. in weight of water and 25 per cent. in weight of elements derived from the soil. Human beings re-

quire soil products and animals plus large amounts of water to develop and nourish their bodies, composed approximately 75 per cent. in weight of water and 25 per cent. in weight of elements obtained from the soil by consuming soil products and animals. Many millions of human beings have in the past starved to death from want of food.

To be a successful statesman, producer or manufacturer it is necessary to know what materials are required to produce finished products and how to control them to insure efficient production, especially to prevent want and starvation.

Dependence of a nation upon the caprice of the winds to deliver the 500 to 1000 tons of water necessary to produce a ton of soil products frequently results in disastrous losses, as was the case in 1913, when the capricious winds deposited large volumes of water in Ohio and Indiana, causing flood losses amounting to about \$250,000,000 and the loss of many lives, and during the same year failed to deliver to a number of Western States the water required to complete the growing crops and sustain animal life.

The corn loss alone was about 700,000,000 bushels, or \$420,000,000, at 60 cents per bushel.

Such great losses are unnecessary, as it is evident that it is more civilized and more profitable to give employment to the people by doing the necessary engineering work to control the river waters for production and wealth development than to permit them to be destructive to life and property and escape from the country without serving useful productive purposes.

The statistics published in the MANUFACTURERS RECORD show the large territory of rich land in the Southern States available for agricultural and forest production. The Southern States are also especially favored by nature's generosity with an abundant supply of heat and light from the sun, so essential to animate water in the process of production. To insure the production of life and wealth efficiently the supply of water should be under control and not dependent upon the caprice of the winds.

The citizen in modern cities has his water supply insured for production and use by modern water-works. Similar care and thought given to the national water supply in rivers will not only save life and property from destruction, but will convert this vital fluid into the principal agency to insure the production of soil products, animal life and consequent increase in health, wealth, prosperity and welfare of the rapidly-growing population of the United States. Many are feeling, not only the high cost of living, but also the lack of employment now, which may become more acute should the warfare in Europe continue for a long time or the crops be diminished from lack of rainfall at the time when needed.

The additional wealth contained in the by-products from river water in the form of water-power and navigation greatly increases the dividends to the nation from proper control and use of the water in rivers.

There has never been a more opportune time for the National Government to proceed with these works, so that those who are idle may be employed on beneficial wealth-developing works and set an example of constructive work to the entire world which will be quickly emulated by other nations when the wave of destruction is ended and a new and greater era of construction and production based on greater knowledge is entered upon to replace the great losses in life and capital.

Nature is extremely kind and liberal. The earth has abundant land, and receives abundant refined heat and light from the sun. Ample water for the enrichment and welfare of all mankind is now running away in rivers, but able statesmen can make the water available for productive uses. Want, famine and poverty can be overcome by controlling and using water, the substance modern chemistry reveals as so vital to all life.

Less than 60 years ago petroleum was generally considered of very slight value; today everyone appreciates its great value and many uses.

It will soon be common knowledge that water has many more uses and is much more valuable and precious than petroleum, valuable as that fluid is now known to be. The Federal Government will be called upon to



give to water at least the same degree of care and attention which private corporations give to petroleum, so that the people may enjoy the great benefits from water controlled for production, multiplying life, wealth and the general welfare.

The Federal Government is the trustee of the national water supply in rivers, and, like private trustees of other resources, can give to the people the maximum by-products and benefits from the water in its charge. It has the collective wealth and intelligence of the nation at its willing service.

Presidents in fulfilling their constitutional duty to inform Congress by messages regarding the large volume of waters under their charge have a great opportunity to benefit all mankind by disclosing enlightened, comprehensive plans for the control of the waters entrusted to their care by modern methods so that destruction will be prevented and ever-increasing beneficial uses will be obtained at all times, insuring an abundant food supply and at the same time greatly increase the general welfare, the principal object to be obtained by our form of government.

Professor Van Hise, in his very able book on "The Conservation of Natural Resources in the United States," page 183, concisely presents some of the great benefits as follows:

"McGee's estimate of the gains which will result from the expenditure of \$500,000,000 distributed through 10 years for the improvement of the waterways is as follows: He says there would be an annual saving in transportation of \$250,000,000, an annual saving from flood damages of \$150,000,000, an annual saving from forest fires of \$25,000,000, an annual benefit from cheapened power of \$75,000,000, an annual saving of soil erosion of \$500,000—a total of \$1,000,000,000 per annum. The proposed expenditure is at the rate of 62½ cents per year per capita. The saving is at the rate of \$12.50 per capita, or twenty times as much."

The annual returns (now being lost) are greater than the revenues of the Federal Government and more than double the annual gold production of the entire world. The increase in soil products and useful animals will also add many billions of dollars in wealth to the nation every year for centuries to come.

It is evident that each day's postponement by the Federal Government in placing intelligent, comprehensive plans into action causes a very great loss to the nation which can be avoided by prompt, energetic, constructive action.

### New Orleans Port Business.

The eighteenth report of the Board of Commissioners of the port of New Orleans for 1914 shows that during the year there were 2153 arrivals of seagoing vessels, having a gross tonnage of 6,110,540, of which 1529, with a gross tonnage of 4,741,454, occupied the public wharves and paid \$330,746 wharfage. Other arrivals at the port were 1640 steamboats, 298,000 miscellaneous craft and 2245 luggers and gasoline launches engaged in the oyster, fish and vegetable trade. Of the 682 ocean-going vessels which arrived at the port, 279 were British, 157 American, 81 Norwegian, 38 German, 26 Italian, 23 Spanish, 14 Austrian, 14 French, 11 Danish, 7 Mexican, 6 Dutch, 5 Honduran, 4 Swedish, 4 Greek, 4 Portuguese, 3 Cuban, 2 Belgian, 2 Brazilian, 1 Holland and 1 Roumanian. The port commissioners of New Orleans control more than 41 miles of river frontage, 21 wharves having an aggregate length of 29,662 feet and an area of 4,048,590 square feet, and 20 steel sheds having an aggregate length of 19,247 feet and an area of 2,903,057 square feet.

### Florida Architects.

The Florida Association of Architects will hold its annual convention at Atlantic Beach June 10-11. Through the efforts of this association a State Board of Examiners of Architects for licensing and regulating the professional practice of architects has been created by the Florida Legislature. The officers of the association are George L. Pfeiffer of Lemon City, president; M. L. Elliott of Tampa and Rutledge Holmes of Jacksonville, vice-presidents; E. A. Ehmann of Jacksonville, secretary and treasurer; M. S. King of Orlando, F. J. Kennard of Tampa, W. B. Tally of Jacksonville and H. J. Klutho of Jacksonville, directors.

## CHATTANOOGA GAS & COAL PRODUCTS CO.'S PLANT.



This plant has heretofore been completely described. It is located at Alton Park, near Chattanooga, Tenn., and understood to represent an investment of approximately \$500,000. It will consume 500 tons of coal daily and reduce this fuel to 400 tons of coke, 5,000,000 cubic feet of gas, and a large amount of tar and ammonium sulphate. The equipment includes coal-handling machinery, battery of Roberts ovens, coke-handling machinery, 150x65-foot by-products department, 2 batteries of boilers for 1600 horse-power, fan for drawing waste heat from ovens through boilers, 100-kilowatt turbine generator, centrifugal pump, 100-foot standpipe fed by three wells, etc. Lewis T. Wolle is the company's president and M. W. Dutto is chief engineer. The American Coal & By-Product Coke Co., Chicago, directed the designing and construction of the plant. Contracts were awarded as follows: Western Gas Construction Co., Fort Wayne, Ind., by-product machinery; Wellman-Seaver-Morgan Company, Cleveland, O., coke pusher and coal-charging cars; R. H. Beaumont Company, Philadelphia, coal and coke-handling machinery; Smallwood Company, concrete and sewerage; Casey-Hedges Company, boilers, condensers and quenching station; Chattanooga Boiler & Tank Co., standpipe, tar and liquor tanks; Converse Bridge Co., by-products buildings; Walsh & Weidner, steel works for coal bin and conveyor; all of Chattanooga.

### Southern Industrial Activities.

During May the Construction Department of the MANUFACTURERS RECORD published 4863 items relating to industrial developments, building operations, financial and railroad enterprises and progression, and general business interests of the South and Southwest. These have appeared in the *Daily Bulletin*, and weekly in the MANUFACTURERS RECORD, and are summarized in the following table:

Industrial and Developmental.	
Bridges, Culverts, Viaducts.....	56
Canning and Packing Plants.....	28
Clayworking Plants.....	7
Coal Mines and Coke Ovens.....	39
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Cotton Compresses and Gins.....	18
Cottonseed-oil Mills.....	8
Drainage Systems.....	16
Electric Plants.....	95
Fertilizer Factories.....	4
Flour, Feed and Meal Mills.....	31
Foundry and Machine Plants.....	28
Gas and Oil Enterprises.....	145
Ice and Cold-storage Plants.....	28
Iron and Steel Plants.....	2
Land Developments.....	48
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Buildings.	
Apartment-houses.....	141
Association and Fraternal.....	43
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Courthouses.....	13
Dwellings.....	535
Government and State.....	35
Hospitals, Sanitariums, etc.....	46
Hotels.....	49
Miscellaneous.....	69
Railway Stations, Sheds, etc.....	27
Schools.....	357
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Theaters.....	46
Warehouses.....	46
Railroad Construction.	
Railways.....	75
Street Railways.....	10
Financial.	
Corporations.....	78
New Securities.....	474
Fire Damage, etc.....	4,068
Machinery, Proposals and Supplies Wanted.....	613
Total for May.....	4,863
Previously detailed since January 1, 1915.....	18,130
Total for five months.....	22,993

### To Build Big Marble Mill.

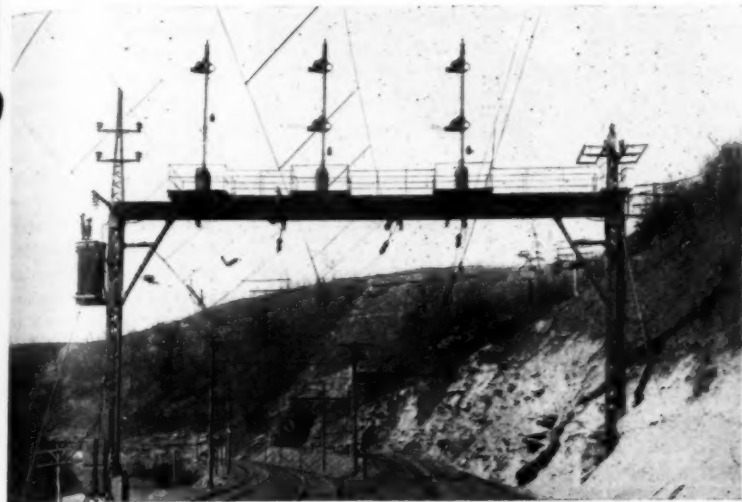
Milwaukee capitalists with plants for producing Tennessee marble at Amaro, Tenn., and Bedford limestone at Victor, Ind., will build a large marble mill at Vestal, a suburb of Knoxville, Tenn. Their company is the Andres Stone & Marble Co., with main office and works at Milwaukee. Its plans are briefly outlined as follows: One mill span 204 feet long by 69¼ feet wide, with a height of 36½ feet from roof post foundations to eaves; adjoining leanto for machine-room to span 50 feet wide, 272 feet long and to be 20 feet long at lowest point; mill span provides for 30-ton traveling crane runway of 65-foot span, carried out 68 feet into the open; specifications provide for a riveted steel-framed structure throughout, anchored to concrete foundations, with siding of No. 22 corrugated galvanized Armo; upper windows of wood, lower sash of steel; roof of wood, covered with felt-gravel roofing and with galvanized-iron ventilators.

### A Novel Market Plan.

A novel public market plan has been put into effect at St. Louis by the St. Louis County Producers Market Co., a \$200,000 corporation having 675 stockholders, many of whom are truck farmers of the county. The company has built at the corner of Sarah street and Laclede avenue a row of two-story stores for commission merchants, and running east on Laclede avenue it has built five sheds for market stalls. The stores are of brick and the sheds have granitoid floors and corrugated iron roofs supported on steel structure. There is space between each shed which is 200 feet long for the gardener to drive in and back up his wagon in front of his own stall. Each shed has capacity for 44 stalls, which are rented, and when the structure is complete there will be 616 stalls. Two sheds will be added at the east end of the five now erected, and seven will be built in a row to the north of the first one, and there will be a 40-foot driveway between the rear of the two rows.

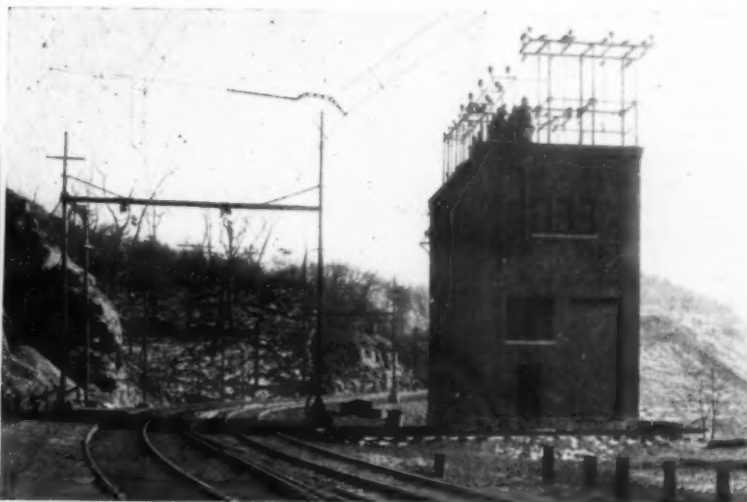
The 10 lectures on public utility economics delivered in the 1913-14 course before the West Side Young Men's Christian Association of New York have been gathered into one volume. They dealt with holding companies, public ownership, lighting, telephones, power supply, investments, regulation and legal aspects.

# Electrification of a Railroad Grade for Coal Handling



SIGNAL BRIDGE NEAR COOPER TUNNEL PORTAL.

Note section breaks in contact line. Booster transformer on the left side of bridge. Double-track wood pole construction to left. Single track to tunnel to right. Three-arm wood pole transmission line over tunnel in the central background.



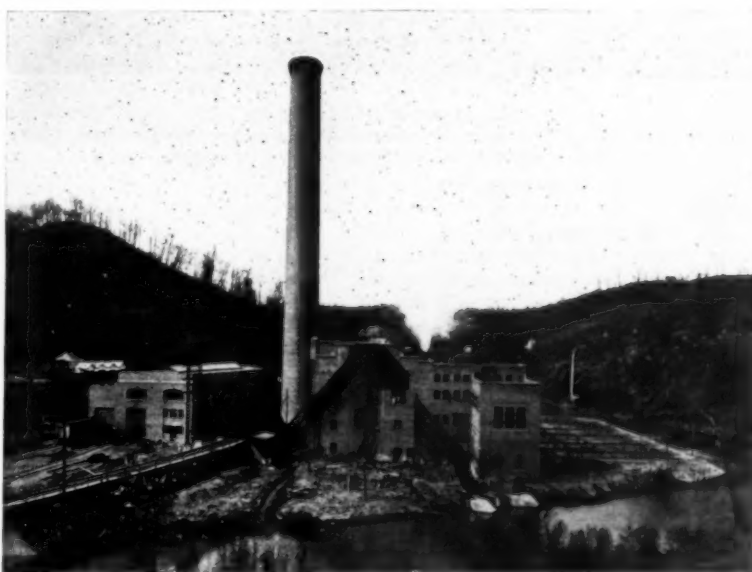
EXTERIOR OF MAYDEURY SUBSTATION.

This is typical of the substations where power supplied to the trolley system and trains is obtained from transformers which step down the voltage from 44,000 to 11,000 volts. The substations are located at suitable points along the line.

One of the most interesting applications of electricity to transportation is the work on the Norfolk & Western Railway in West Virginia. The electrified section of the Norfolk & Western Railway, known as the Elkhorn Grade, is located on the main line in the southern part of West Virginia, about 105 miles west of Roanoke, and extends from Bluefield to Vivian, a distance of about 30 miles. The section is double track throughout, except in the Elkhorn Tunnel, which is single track. There is also a large amount of third track, or passing sidings and branches into the coal workings, and yard trackage.

The grades on the line are heavy, varying from 1.10 per cent. at the west end to 1.5 to 2 per cent. up the grade, to and through the summit tunnel, a distance of about 10 miles; thence the line descends on a 2.5 per cent. grade for about a mile and then rises again at the ruling rate of about 0.25 per cent. for 10.5 miles, and finally up a 1.22 per cent. grade for three miles into Bluefield, the easterly end of the division. Fully 60 per cent. of the line is on curves, the maximum being 12 degrees. The electrification of this section of the railway is primarily for the purpose of collecting from the mine sidings and yards in the coal fields the entire eastbound coal tonnage and transporting it up the grades and over the summit to the classification yard at Bluefield, the division point of the railway. From Bluefield, after classification, it is shipped east to the various destination points, chiefly to the railway company's marine shipping pier at Lambert's Point, near Norfolk, Va. All coal traffic originates west of Flat Top, about six miles east of the summit of the heavy grade, and although a good deal of the coal goes west, the easterly shipments are very heavy, and this constitutes the chief load handled electrically. Some coal originating east of the summit is shipped to the west, and this is also handled by the electric service to yards near the westerly end of the electrified section.

There are numerous colliery sidings throughout the coal fields, and the electric service includes the collection of loaded cars or trains from these sidings on the eastbound trip and the delivery of empties on the return trip. It will thus be seen that the electrified section is practically a local switching and short-haul division between the coal fields and Bluefield, operated to a large extent independently of the other traffic of the main division. In addition to the heavy tonnage coal train service, however, through merchandise freight and passenger traffic over the electrified section, which is still handled by steam road engines, is also handled in part by electric engines, which are used as pushers or helpers



THE POWER-HOUSE AT BLUESTONE.

This view, taken from the west, shows the inspection building to the left, the coal-delivery track with gondola car over the track hopper, power-house building with coal elevator from the hopper, the intake canal and the cooling pond to the right. The extension or wing at the right end of the power-house is a substation, and there the structures for carrying outgoing feeders are shown.

up the grades for the regular steam engine service.

Another condition favorable to electric traction is the fact that trains may be dispatched at fairly uniform intervals throughout the day, and thus desirable loading conditions on the power system are obtained and at the same time the full service is handled with a moderate number of locomotives, each making a number of round trips per day.

The purpose of the company in electrifying this section is to increase the capacity of the railway by materially reducing the time required to handle trains and to provide a more economical and efficient service over the heavy grades. To this end the heavy freight trains are handled with electric locomotives at a running speed up the grades of 14 m. p. h., as compared with about 7½ m. p. h. under steam operation, and a further saving in time is also effected by the elimination of the delays steam trains have heretofore occasioned by occupying the tracks while the engines take on coal and water, one at a time, at the several coal and water stations on the grade. The effect of increased speed is especially marked at the single-track Elkhorn Tunnel, 3000 feet long on 1.5 per cent. grade, where, on account of ventilation requirements, it has been necessary under steam operation to reduce the speed up grade in the tunnel to about 6 m. p. h. This requires about seven minutes to clear the block, whereas under electric operation this movement is made in about three minutes.

The heavy coal trains, known as "tonnage trains," handled in this service weigh 3250 tons and have formerly

been handled up the grade by three steam locomotives, two of these, a road engine and helper, one at each end of the train, being used over the entire section, and the third, at the rear, serving as a pusher up the 1.5 and 2 per cent. grades, this pusher being cut off at the summit. These steam engines are of the highly developed heavy Mallet type, fitted with mechanical stokers and superheaters. Under electric operation a single road engine is used over the division and a second electric engine is used as a pusher up the 1.5 and 2 per cent. grades. Thus it will be seen that one electric engine takes the place of two Mallets over the division or two electric engines take the place of three Mallets up the grades and handle the train at approximately double the steam speed. The speed at which the electric locomotives handle the trains on the 0.4 per cent. grade between Cooper and Graham is 28 m. p. h.

The electrical installation has been laid out and power plant, locomotives and other equipment provided for handling 20 tonnage trains, or 65,000 tons, a day eastbound over the division, and ample provisions have been made for additional traffic and extensions when required. The number of these tonnage trains handled per day at present is about 12, in addition to which pusher and helper service is provided for through freight and passenger trains.

The single-phase system of traction is used, power being generated, transmitted and distributed single phase at 25 cycles and collected from the overhead catenary trolley contact system at 11,000 volts. The locomotives, however, are unique, in that they are equipped with phase converters, which, in connection with the main step-down transformers on the locomotives, transform the single-phase power of the trolley to three-phase power for use in the three-phase induction type traction motors. Thus, while retaining all the advantages of high voltage single-phase distribution and collection, the advantages of three-phase induction motors for these heavy traction mountain grade conditions are also secured.

Another characteristic feature of the installation is the fact that as the result of the use of traction motors of the polyphase induction type it is feasible without the use of additional or complicated apparatus and devices to utilize the locomotives for electrically holding or braking the trains at constant speed while descending grades. This utilizes the energy in the moving train descending the grade to drive the motors as generators and thus return energy to the line.

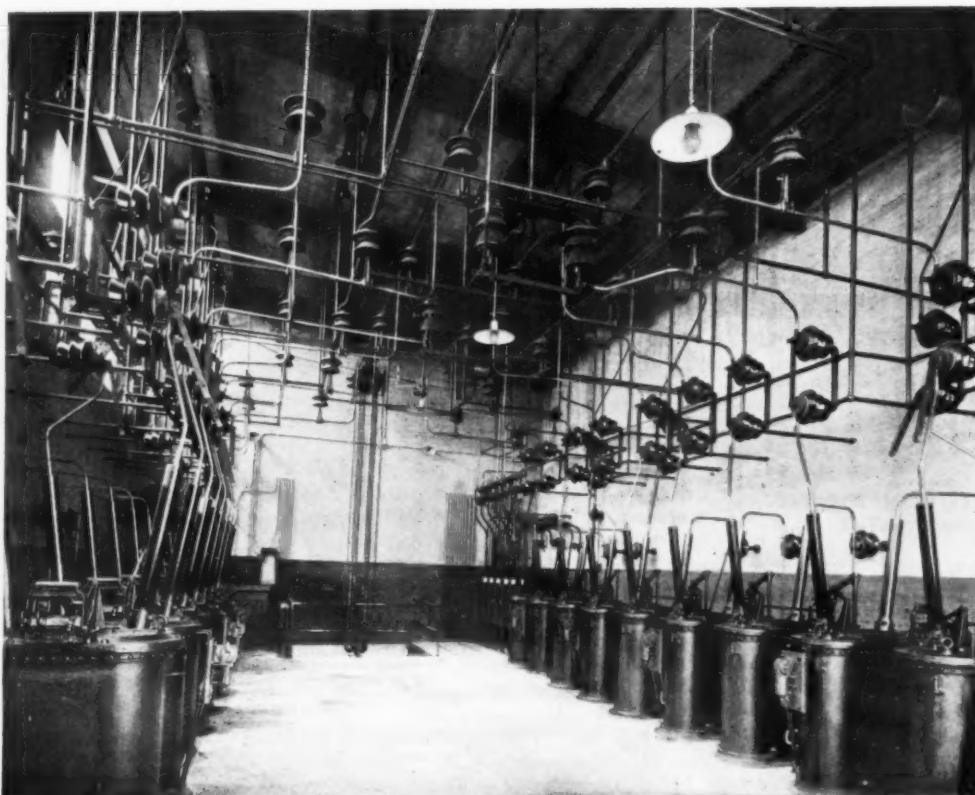
This kind of electric braking or "regeneration" has been much discussed and often proposed both in this



country and abroad, but with the exception of the Giovi line in Italy this feature has not been utilized in any extensive commercial electric railway operation. Even on the Giovi line the train weights do not exceed 400 tons, and it is evident, therefore, that this is the first instance where the use of this form of electric braking has ever been attempted for heavy freight train service, such as obtains on American railroads. On the Elkhorn Grade the conditions are such that the full advantages of this form of braking can be secured, in that the trains are very heavy, the grades are severe, and the speeds are relatively high. The performance of this feature of the installation has proven highly satisfactory under operating conditions, the heaviest trains being handled down the mountain grades with a single engine at a uniform speed of about 15 m. p. h. with the utmost ease, the airbrakes being held in reserve for bringing the train to a standstill when required. This results in a large reduction in the wear on brake shoes and wheel tires and wear and tear on draft gear and on the cars and locomotives generally. While the above is the principal advantage obtained from regenerative braking, there is also some saving in power due to the return of energy to the line, which is available for augmenting the power-house in supplying power to other trains if there is a demand for such power at the time.

Next to the electric locomotives, the most interesting feature of the electrification is probably the catenary line construction. In designing this feature of the installation, the engineers had uppermost in mind the two important requirements of reliability of service and low cost of maintenance. An effort has been made to secure the maximum degree of flexibility and freedom from hard spots at the contact wire, so as to avoid rapid deterioration and frequent breakages and failures, and a special effort has also been made to provide the highest type of insulation so as to avoid interruption to service due to insulation breakdowns.

In designing the supporting structures an effort has been made to secure a neat and attractive appearing structure which would not interfere with the view of signals and which would present the least surface for corrosion and minimize the cost of painting and repairs, as well as the first cost of installation. In working out the design of these lines, the catenary system has taken the form of single catenary with an auxiliary messenger wire above the trolley, one main hanger being provided for every two intermediate connections between auxiliary and trolley on tangents. On curves the angularity of the hangers provided the necessary flexibility, the auxiliary messenger and trolley wire being connected to the hanger at the same point. The principle of providing more than one single insulator between live parts and ground has been adopted, and suspension insulators are used throughout as being the least liable to fail due to transverse stresses. Care has also been taken to guard against failures due to unequal expansion and contraction resulting from temperature changes. For the main line tracks three suspension insulators are connected in series, so that the failure of one or even two at any point will not result in the complete breakdown of the insulation and interrupt the serv-



INTERIOR OF POWER-HOUSE.

The high-tension switching-room, showing oil circuit breakers. Note absence of brick partitions or compartments, and heavy pipe bus bars supported from pipe framework.

ice. For the yard tracks and sidings two such insulators are used.

Great care has been taken also to provide ample clearance between every live part and adjacent grounded structures, and as a rule this clearance is maintained at not less than 18 inches, so as to avoid the danger of birds or foreign materials causing a short circuit. The same principle applies in the tunnels; the insulators are, however, placed off to the side and out of the direct blast from locomotive stacks, and here two 44,000-volt transmission line insulators in series are used in all cases between live points and ground.



A 270-TON BALDWIN-WESTINGHOUSE ELECTRIC LOCOMOTIVE WITH COAL TRAIN ASCENDING THE ELKHORN GRADE.

The line supports are light bridges made of tubular poles and Bethlehem "H" section crossbeams, and the structures are guyed on the outside of curves to resist the curve pull by means of two heavy guy rods secured in concrete anchorages. At signal bridges the signals and catenary system are supported on structural bridges which consist of latticed posts carrying shallow plate girders which form as little obstruction to the view of signals as possible and are easily painted and maintained. The same type of bridge is used on curves where it is impossible to provide guys at the outside of the curve.

ated at one central point and provided with means by which constant connection is maintained with all points, including train dispatchers, yardmasters, and the superintendent and other division heads. The company has also provided dwellings for foremen and others on its property near the power-house at Bluestone.

In addition to the direct advantages and savings resulting from the electric train service, the railway has taken advantage of the presence of an adequate power supply at net cost of generation for the operation of various auxiliary plants. Thus a large steam pumping station at Bluestone for the water supply for steam locomotives has been shut down and the pumping is done at the electric power station located nearby, and the fans for ventilating the Elkhorn Tunnel will now be driven by electric motors. Likewise electric power will also be ultimately used for operating shops and pumps at Bluefield and several other points on the division.

The principal elements of the Norfolk & Western electrification include the following:

Electric power station of 30,000 kilowatts installed capacity located at Bluestone Junction on the Bluestone River.

Duplicate 44,000-volt single-phase power transmission lines carried on catenary structures.

Transformer substations, five in number, having an aggregate installed capacity of 28,000 k. v. a. in 44,000—11,000-volt single-phase stepdown transformers.

Distribution and catenary trolley construction for main line tracks and tunnels, including track bonding and provisions for sectionalizing and switching.

Special appliances for protection of telephone and telegraph lines.

Electric locomotives.

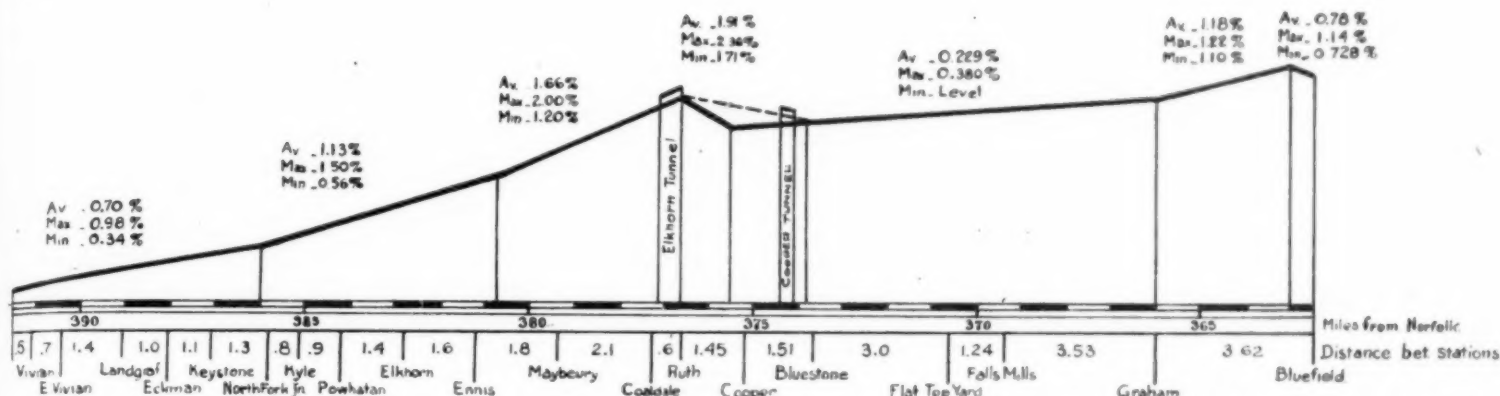
Inspection facilities for electric locomotives.

Miscellaneous equipment, including provisions for patrolling, inspection and maintenance of lines.

Automatic block signaling equipment.

The electrification of this section had long been under consideration, but the decision to electrify was not reached until about two years ago. The layout and design of the entire installation was worked out in all details by Gibbs & Hill, Pennsylvania Station, New York, engineers for the company. All construction, excepting

In laying out the electrical installation a great deal of attention has been given to the provision of adequate and convenient facilities for the inspection and maintenance of all parts of the installation. The center and headquarters of the whole system is at Bluestone, where the power-house is necessarily located on account of the water supply, and after much study it was decided to locate the inspection building and machine shop for maintenance of electric locomotives here also rather than to try to take care of electric engines at the steam engine shops at Bluefield. The headquarters of the line maintenance force is also located at Bluestone, and is in constant touch, by means of a patrol telephone line and telephones placed at signal bridges, with all parts of the electrified section in addition to the usual telephone facilities. Thus the general foreman and the foremen of all departments of the electrical maintenance work are located at one central point and provided with means



PROFILE OF ELKHORN GRADE OF THE NORFOLK & WESTERN RAILWAY BETWEEN VIVIAN AND BLUEFIELD, W. VA., NOW ELECTRIFIED. GIBBS & HILL, CONSULTING ENGINEERS, NEW YORK CITY.

the power-house and inspection buildings and some of the power station equipment, was carried out by a specially organized-railroad force under the supervision of the engineers.

The power station is of the usual type, using steam boilers and steam turbines as the prime movers. It is at Bluestone, on the Bluestone River, 11 miles west of Bluefield, mainly for the reason that this is almost the only available source of water for boiler feed and condensing purposes in the district, and the railway company had already constructed a dam and reservoir here for the water supply for its steam locomotives. The main structure of hard burnt brick is about 135x158 feet, with a 52x33-foot extension at the northeast corner.

Included in the equipment of the power plant are coal-handling machinery driven by alternating-current motors, horizontal Cochrane feed waters and purifiers, Lagonda strainers, standard Sturtevant E-5 type steam turbines, Sturtevant multivane turbine-driven fans, LeBlanc jet type condensers, Westinghouse turbo-generators, Bowser oil filters and Westinghouse single-phase transformers.

The telephone and telegraph lines along the railway are protected from danger of interruption of the service, and special care has been taken to provide adequate facilities for the inspection and maintenance of the entire electrical installation, and these have been centralized at Bluestone.

The electrified section of the railway was formerly equipped with automatic signals of the direct current type, requiring primary storage batteries, these signals being usually mounted on posts along the track. Under electric operation, however, it would be advisable to make use of these signals, which have only recently been installed and were practically new, on other parts of the railway and to provide new alternating-current signals in connection with alternating-current track circuits, the signals being mounted on the catenary bridges. This part of the work was carried out by the railroad company.

The traffic on the electrified section is handled by twelve 270-ton Baldwin-Westinghouse locomotives, each consisting of two 135-ton units or halves. The principal dimensions and weight of each complete locomotive are: Length over all, 105 feet 8 inches; driving wheel base, total, 83 feet 10 inches; rigid wheel base, 11 feet; truck wheel base, 16 feet 6 inches; height, rail to pantograph (locked 16 feet); height, rail to top of cab (maximum), 14 feet 9 inches; width over all (maximum), 11 feet 6 1/4 inches; width over cab body, 10 feet 3 inches; diameter of driving wheel, 62 inches; diameter of pony wheels, 30 inches; weight on drivers, 220 tons; total weight of locomotives, 270 tons.

The following table shows the performance of these locomotives under varying conditions of load:

	Train on 1.5 and 2 per cent. grades.	Train on 1 per cent. grades.	Train on 0.4 per cent. grades.
Weight of train—tons.....	3,250	3,250	3,250
Locomotives per train.....	2	1	1
Approximate speed, miles per hour.....	14	14	28
Drawbar pull per locomotive—pounds.....	91,800	114,000	79,400
Uniform acceleration:			
At speed on 2 per cent. grade....	75,400		
At speed on 1 per cent. grade....		85,900	
At speed on 0.4 per cent. grade....			4,900
Maximum guaranteed accelerating tractive effort per locomotive.....	133,000	133,000	90,000
Approximate maximum guaranteed H. P. developed by motors.....	5,000	5,000	6,700

On tests and in service the locomotives have developed

a drawbar pull considerably in excess of the guaranteed maximum, the highest record with the dynamometer car being 180,000 pounds. This corresponds to an adhesion of about 40 per cent.

The principal manufacturers and contractors supplying materials and equipment for the electrification are as follows:

- C. W. Hancock & Sons, Lynchburg, Va., contractor, power-house building.
- John P. Pettyjohn & Co., Lynchburg, Va., contractor, inspection building.
- R. H. Beaumont & Co., Philadelphia, Pa., coal and ash handling and storage equipment.
- Alfred Box & Co., Philadelphia, Pa., power-house crane.
- Babcock & Wilcox, New York, N. Y., boilers.
- Westinghouse Machine Co., East Pittsburgh, Pa., pumps, stokers, condensers.
- Harrison Safety Boiler Works, Philadelphia, Pa., feed-water heaters.
- Alphens Custodis Chimney Construction Co., New York, N. Y., stack.
- Clas. B. Nicholson & Co., New York, N. Y., flues and duct work.
- B. F. Sturtevant Company, Hyde Park, Boston, Mass., forced-draft fans.
- Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., turbo-generators, switching equipment, locomotives (electrical portion), exciters, transformers.
- Baldwin Locomotive Works, Philadelphia, Pa., locomotives (mechanical portion).
- Spray Engineering Co., Boston, Mass., cooling pond and equipment.
- Pratt & Cady Company, Hartford, Conn., valves.
- M. W. Kellogg Company, New York, N. Y., steel piping and flanges.
- Benjamin F. Shaw Company, Wilmington, Del., pipe fittings (cast steel).
- H. W. Johns-Manville Company, New York, N. Y., heat insulation for piping, flues, etc.
- Glamorgan Pipe & Foundry Co., Lynchburg, Va., cast-iron pipes.
- General Electric Co., Schenectady, N. Y., wires and cables for power-house, track bonds, transformer oil-filter equipment.
- Chicago Pneumatic Tool Co., Chicago, Ill., air compressor.
- Locke Insulator Manufacturing Co., Victor, N. Y., insulators, insulator pins and fittings.
- Bridgeport Brass Co., Bridgeport, Conn., phono-electric trolley wire.
- Standard Underground Cable Co., Pittsburgh, Pa., copper trolley wire.
- John Roebling's Sons Company, Trenton, N. J., stranded steel cable, steel trolley wire.
- Thomas Laughlin Company, Portland, Maine, turn-buckles, cable sockets, etc.
- Fort Pitt Steel Casting Co., McKeesport, Pa., steel castings.
- Standard Steel Works Co., Philadelphia, Pa., steel castings.
- National Tube Co., Pittsburgh, Pa., tubular catenary poles.
- Virginia Bridge & Iron Co., Roanoke, Va., structural steel for substations and inspection building, catenary bridges.
- Ohio Brass Co., Mansfield, O., track bonds.
- Electric Service Supplies Co., Philadelphia, Pa., track bonds.

American Steel & Wire Co., Chicago, Ill., track bonds.

Niles-Bement-Pond Company, New York, N. Y., machine tools.

Malleable Iron Fittings Co., Branford, Conn., malleable iron catenary clamps and fittings.

Phoenix Bridge Co., Phoenixville, Pa., structural steel for power-house.

Whiting Foundry Equipment Co., Harvey, Ill., crane in inspection building.

Otis Elevator Co. of New York, N. Y., elevator in power-house.

Electric Storage Battery Co., Philadelphia, Pa., control storage battery.

Fiber Conduit Co., Orangeburg, N. Y., fiber conduit.

Crane Company, Chicago, Ill., small pipe fittings.

Chisholm & Moore Manufacturing Co., Cleveland, O., transformer chain hoists.

Exeter Machine Works, Pittston, Pa., bronze castings.

Waclark Wire Co., New York, N. Y., wire.

Crouse-Hinds Company, Syracuse, N. Y., conduit fittings.

Shepard Crane & Hoist Co., Montour Falls, N. Y., ash-handling equipment.

Turl Iron & Car Co., Newburgh, N. Y., ash cars.

Hohman & Maurer, Rochester, N. Y., gauges, thermometer, etc.

Hubbard & Co., Pittsburgh, Pa., guy rods, small forgings, etc.

Pyrene Manufacturing Co., New York, N. Y., fire extinguisher.

National Lead Co., New York, N. Y., "Cinch" expansion units.

## IMPORTS OF BRAZILIAN MANGANESE.

### Heavy Shipments Now Coming to Baltimore Upon Sailing Vessels.

With contracts for 60,000 tons of manganese ore from Brazil to be delivered at Baltimore between April 1 and July 31, a number of big schooners formerly engaged in coastwise trade are finding employment in this new line.

The manganese ore situation, always of interest owing to the relative scarcity of the ore and its importance in the steel industry, is made especially so at the present by conditions brought about by the European war. During the fiscal year ended June 30, 1914, the imports by this country of manganese ore were 285,914 tons. Of this, only 72,189 tons were from Brazil, 115,685 tons coming from British India, 98,040 tons from Russia and 2792 tons from other sources which need not be considered, at a price of about \$12 per ton, making a movement nearing \$3,500,000 annually. Shipment from the Indian and Russian fields is for the time practically cut off by the war. That situation leaves Brazil the task of meeting our entire needs of manganese ore, of which only about one-fourth has usually come from that field.

Brazilian manganese ore shipments made since April 1 and cargoes booked for shipment before August 1 aggregate approximately 60,000 tons, or at the rate of about two and a half times that of importations from Brazil before the war. This quantity is limited by the lack of tonnage available rather than a lack of Brazilian



mining facilities. This ore is sent from Baltimore to Pennsylvania points, mainly to Pittsburgh. Capt. E. W. Rogers of the four-masted schooner Edward H. Cole, who recently brought up a load of manganese ore from Brazil, stated to the MANUFACTURERS RECORD that there were 60,000 tons of ore piled on the docks when he left, and that the mine operators are very anxious for craft in which to ship to this country.

The Brazilian ore trade with this country seems to have been limited in the past by a difference in cost of ore delivered in our ports in favor of the fields above mentioned. Possibly there is a chance here in forced larger production while former competitors are necessarily curtailed in production, so to lower the price of delivered ore by improved and enlarged mining and shipping facilities that the Brazilian mines may hold the trade now established by the exigency of the situation. If so, it will be another instance of American trade to Americans. The development of this larger trade with Brazil opens up other possibilities for return cargoes in the vessels now bringing manganese ore. Investigations of the last few years indicate that Brazil is to be one of the world's great sources of iron ore as well as of manganese.

### PLANS FOR SHIPBUILDING.

#### Two Projects for the South Reported as Under Consideration.

In anticipation of the revival of American shipbuilding, plans are being formulated for the establishment of extensive shipyards at Mobile, Ala. This city has, it is said, been selected, after consideration of various other advantageous locations. Edward Warden Hyde of Bath, Maine, formerly president of the Bath Iron Works and connected with various other financial and industrial enterprises, is the principal organizer of the Mobile plant. It is proposed to form the Gulf City Shipbuilding & Drydock Co., with a capitalization of \$4,500,000, and Mr. Hyde will be general manager. Options have been obtained on three sites, one of them being a 19-acre tract on Magazine Point, opposite Mobile, and a selection will soon be announced. The yard capacity of the plant will be for vessels up to 600 feet, with a drydock capacity of 3800 feet and a marine railway with a capacity of 500 feet. This establishment is expected to be completed within one year and to employ about 4500 men, half of whom will be skilled workmen. Referring to his plans for this important addition not only to the business enterprises of Mobile, but also to those of the whole South, Mr. Hyde is quoted by the Mobile Register as follows:

"The readiness of capital to develop a new shipyard in a new field seems to me to be sufficient evidence that American capital will take care of the shipping problem if it is left unhampered by Government competition. The climatic conditions raised a question as to the advisability of locating a plant of this character on the Gulf. I investigated thoroughly and am satisfied that our workmen, assembled from Maine and Boston and the Pacific coast, will find acclimation not only easy, but delightful. We shall have a longer season and better weather for work. Cheapness of materials is another important factor. We can get steam coal delivered in our bins in Mobile at \$1.60 a ton—the same quality that costs \$6.10 at the Bath Iron Works. The Birmingham district can develop a supply of tank steel and lay it down to us at Mobile at \$7 a ton cheaper than the Pittsburgh district can deliver it by the coastwise routes. We shall incorporate with an initial capital of \$4,500,000. But that is only a beginning, for we are assured just as much more capital as the development of the business requires. Freight tonnage will be our first objective, with naval work as a side issue. For the latter we have back of us the experience of the Bath Iron Works, of which my brother is the head, where the fastest boats of the navy have been constructed. We shall plan for a large repair business also, because we shall be the nearest yard to the Panama Canal."

It is reported that the British-American Company, through the efforts of Theodore A. Frey, Chicago, president of the Benjamin J. Glaser Realty & Engineering Co. of Chicago, is planning to establish a shipbuilding plant to be capitalized at \$5,000,000. Mr. Frey has been investigating several Southern coast cities, in-

cluding Tampa and Mobile, as a site. Reports state that the facilities will provide for building steel ships of all kinds, and that several thousand men will be employed. The capital required, it is stated, will be furnished by Eastern bankers acting through the Glaser corporation, which is reported to have financed the Dominion Shipbuilding & Engineering Co., lately organized to build works at Vancouver.

### "SEEING GEORGIA."

#### Results of Tour Reviewed by President Haden of the State Chamber of Commerce.

[Special Correspondence Manufacturers Record.]

Atlanta, Ga., May 29.

"Some 200 North Georgians, the participants in the 'Seeing Georgia' automobile tour, have within the last week seen and learned more of Central and South Georgia than they ever have before in their lives, and thousands of South Georgians have seen and realized the interest that the people of this section are taking in their country much more forcibly than ever," was the statement of Chas. J. Haden, president of the Georgia Chamber of Commerce, which conducted the tour that began here May 22 and ended here May 27. The total distance covered was approximately 700 miles. The purpose of the trip was to arouse Georgians to the realization of what Georgia has and produces and to awaken sentiment toward home production. For this purpose the journey was very successful.

"This was particularly true in regard to manufacturing. We ran across any number of small but unique substantial manufacturing plants of various kinds in the towns we visited. Many of them not even I, as the president of chief commercial body of the State, knew of before. I took every occasion to remind these manufacturers that they should get busy and let their light shine outside of the community in which they resided. To do this there is only one answer—advertise. Georgia has a great number of such plants that are buried in their own obscurity.

"As for good roads, we encountered some very good ones and a few bad ones. Judge W. F. Eve of Augusta, an authority and pioneer road builder, informed me recently that Georgia ranked second in the Union in the mileage of standardized roads in proportion to its area. South Carolina ranks first. I mean by standardized roads those that are graded by fills and cuts and are the proper width. I think our party traversed some of the best, and undoubtedly some of the worst. Georgia good roads were possible only through the efforts of the individual counties, who have for the past eight years had their convicts at work on them. The automobile, however, was the chief factor in boosting them, as all towns and communities want the automobilist and are making inducements to get him.

"The animal industry convention at Quitman on the 25th was the most interesting event of the tour. Arrangements were made not only to entertain, but feed 30,000 people. It is estimated that 20,000 were fed at the barbecue given by the people of Brooks county. The parade, which was the feature of the convention, took two hours to pass a given point, and it has been estimated since that there were 2000 moving objects in the parade. It was a notable event.

"I was quite interested to see the wonderful cut that had been made in the cotton acreage. President K. G. Matheson of the Georgia School of Technology was with me in my car during the latter part of the trip, and he agreed with me in the opinion that there were more oats in the ground between Moultrie and Macon, a distance of 102 miles, than there was cotton. Col. J. D. Price, commissioner of agriculture, pointed out that there was less than one-third of the cultivable land between Americus and Moultrie via Albany planted in cotton. Corn and oats seem to predominate in that section.

"We upper Georgians feel much better toward the rest of the State now than ever before, and we are waiting for next fall, when it is expected that an expedition will be started from South Georgia that will tour all this section. If so, we will give them a barbecue on the top of Stone Mountain and a view that will send them back home swelled with pride that they are in the same State with us."

ROY G. BOOKER.

### Tennessee Manufacturers' Association.

At its third annual meeting at Chattanooga last week the Tennessee Manufacturers' Association elected J. E. Edgerton, Lebanon, president; M. E. Temple, Chattanooga; G. L. Harwick, Cleveland, and S. B. Anderson, Memphis, vice-presidents; Walter H. Clarke, Nashville, treasurer; Chas. C. Gilbert, Nashville, secretary, and J. E. Annis, Chattanooga; T. F. Bonner, Nashville; E. W. Foster, Nashville; P. A. Gates, Memphis; Milton H. Hunt, Memphis; C. D. Mitchell, Chattanooga; J. W. Ring, Johnson City; W. A. Rockwell, Harriman; J. M. Rule, Knoxville; B. H. Wilkins, Tullahoma; J. T. Willingham, Memphis; T. R. Winfield, Memphis, and A. K. Tigrett, Jackson, board of governors.

The convention was one of the most enthusiastic and largely attended ever held by the Association, and a number of forward steps in association work were taken. The convention voted a liberal appropriation for extension work by the University of Tennessee under the personal supervision of Chas. E. Ferris, dean of the engineering department of that university.

Preparations were made for the employment of a field secretary to devote all of his time to visiting manufacturing plants in the various parts of the State and keeping up with industrial developments.

The convention went on record as favoring a State manufacturers' exhibit to be located in one of the larger cities of the State, wherein could be displayed the manufactured product of Tennessee.

Such questions as fire and liability insurance, cost of electric power, efficiency engineer were discussed by experts, and at an early date the Association will take up a number of these subjects with a view to rendering service to the manufacturers of Tennessee.

The secretary's report showed a paid-up membership of 483 members, whose aggregate payroll amounted to \$20,218,100 to 52,000 employees. The report of the legislative committee was to the effect that no hostile legislation was enacted during the session of the Legislature just closed, but that the Association was instrumental in having enacted a law repealing the back tax laws of Tennessee and a law providing for a constitutional convention.

### Southern Utilities Report.

The report of the Southern Utilities Co., State of Florida, J. G. White Management Corporation, operating manager, 43 Exchange Place, New York, shows for the year ended March 31, 1915, gross earnings \$1,068,530.00, increase as compared with last year \$129,811.73; operating expenses and taxes \$778,031.83, increase \$70,148.08; net earnings \$290,498.77, increase \$59,663.65; surplus after underlying charges, \$3493.62; bond interest, \$54,412.50; other interest, \$39,081.63; preferred stock dividends (\$105,535), etc., \$85,486.02, increase \$30,768.45. The company operates electric and ice plants at Arcadia, Sanford, Fort Lauderdale, Fort Myers, Live Oak, Miami, Pensacola, St. Augustine and other places. J. H. Pardee is president; S. L. Selden and C. I. Day, vice-presidents, and T. W. Moffat, secretary and treasurer.

### Portland Cement in 1914.

The production of Portland cement in this country in 1914, according to Ernest F. Burchard of the United States Geological Survey, was 88,230,170 barrels and the shipments were 86,437,956 barrels, a decrease under 1913 of 3,866,961 barrels in production and 2,251,421 barrels in shipments. Of the total, 23,599,277 barrels were produced in districts embracing Southern States, and there was an increase of 65,241 barrels over 1913. The shipments from these districts aggregated 23,249,377 barrels, an increase of 767,635 barrels.

The Seaboard Air Line, according to a report from Birmingham, Ala., has ordered 140,000 tons of coal from the Alabama Company, and has also placed an order of nearly 200,000 tons with the Pratt Consolidated Coal Co., while there is another fuel contract pending.

The official report of the Second National Foreign Trade Convention, held in St. Louis, Mo., last January, has been published in permanent book form.

## "Sunlight of Better Things and Better Conditions"

By ELBERT H. GARY, Chairman, United States Steel Corporation, New York.

There has recently been manifested a disposition to blame the business men of the country for not openly and vigorously protesting against influences which were calculated to prevent the natural and reasonable progress of economic effort. Men of prominence and recognized ability have stated in unmeasured terms that it is not only the right but the duty of the business men to boldly and persistently advocate their claims and defend their rights. They have been charged with undue timidity for neglecting to appeal to the sense and fairness of the general public whenever assailed without good cause.

That there has been some ground for these criticisms will not be doubted; but there is another side to this question. The business man has not been alone in his seeming cowardice. There are others largely responsible for the general conditions, and therefore under obligations to work for the advancement of the public interest, who have been reluctant to express their real convictions. Reference is made to some of the statesmen of prominence and ability whose disposition for fair play is unquestioned. On occasions when their voices, if heard in legislative halls, would seem to have been influential, they have remained silent.

In times gone by there have been reasons for the hesitancy of the business man in boldly proclaiming his rights. The conduct of business by many men (though small in number compared with the total) has not always been up to the standard of propriety. This is not a new subject; it has been frequently adverted to by many of us during the last 10 years. As a consequence, there has been considerable prejudice against business interests, particularly the larger ones, and it has been worse than useless to speak in favor of the protection and growth of business, for the words would be ineffective. So it is not difficult to understand why, for a period of years, business men in this country suffered in silence.

There is no intention at this time to modify or minimize anything that has heretofore been said by way of admission that there was need of reform in business methods. On the contrary, the fact should be emphasized that we must be honest and fair in our treatment of all questions submitted to our consideration and decision. But as I have said before more than once, there has been in this country a decided change for better business methods, and, therefore, in the attitude of the general public toward the men in charge of business. There never was any such disregard of the rights of others by business men generally as was frequently charged. It has always been the effort of the large majority to be decent; but all suffered more or less for the misconduct of a few. However, in recent years there has been little cause for complaint, and the general public understands and appreciates these conditions.

Now the time is come when the business man, even if he represents large interests, may speak frankly and freely about any of the important questions which affect him or those whom he represents. When and while our attitude and conduct are above reproach, others will be willing to heed what we may say concerning any question in which they or we may be interested.

The material strength and growth of the nation is of high importance. Food, raiment and shelter are absolutely essential to the life and health of the individual. This is interwoven with all other questions. A nation of individuals who are poverty-stricken has little influence throughout the world. It cannot add much to the happiness of its citizens. If they are deprived of the necessities of life they will not listen long to the advocate of mere morals, nor to the speaker on the stump who seeks political preferment. It therefore behooves every one occupying a position of influence to give his best thought and endeavor to the promotion of business success in this country to the fullest extent consistent with propriety.

The opinion is ventured that lack of continuous business prosperity and success in this country for a number of years has, in part, been the direct result of undue, ill-

considered or unjustifiable assaults which have been made by governmental agencies or by the erroneous and unwise policies of different branches of government. The results have shown to a demonstration that business success has not been fostered or encouraged as it ought to have been; that the vast possibilities of the country for increase in wealth have not been fully utilized. On the contrary, instead of trying to bring about co-operation between the Government and the people in a determined effort to better the conditions of all, there has been, in a substantial degree, an open hostility to business which has paralyzed many of its legitimate efforts. While, as heretofore admitted, there has been cause for complaint on the part of the Government, it is believed that few, if any, cases have been found which could not have been satisfactorily and properly adjusted by personal and friendly, though persistent, efforts without any open or advertised opposition which was certain to lessen confidence and to unfavorably affect large numbers in nowise connected with the matter in question.

The time seems to be opportune, first, to reiterate that the business men throughout the country must give no cause for complaint in the management of their affairs, but must continue to live up to the standards of propriety; and, second, to insist that on those conditions the governments, with all their agencies and influences, shall co-operate with the business interests and aid them in establishing credit, in extending commerce, in increasing capacity, in the development of natural resources, in adding to the comfort of themselves and those with whom they may be connected and for whose welfare they are more or less responsible. If this shall be the recognized effort of the National and State Governments, what can we not properly say of the value of our property, of our future prosperity, the position of our credits, the stability of good conditions and the standing of our nation? And this attitude on the part of governments we believe the people of this country are demanding and have a right to demand; and they will not be satisfied with less.

Again, may we not claim there is ground for improvement in the business methods of the National, State and municipal governments throughout this country? There have been expenditures that were extravagant or useless, aggregating millions; unnecessary positions have been created; the number of incumbents multiplied; money has been paid out for decoration and display and for entertainment and personal comfort that were not appropriate nor justified in a country like ours, which should set an example for economy and efficiency; appropriations have been made for local improvements in order to secure personal patronage; also to cover the expenditures of committees appointed by legislative branches and the Departments of Justice to pay for investigations, secret service, special counsel, etc.

It is believed if the business methods of the United States Government and of its branches and departments were as careful and economical as those of many of the corporations whose presidents are listening to me at this time, hundreds of millions would be annually saved to the people of this country, portions of which are sadly needed for other necessary purposes. Is it too much to ask that hereafter there be elected as legislators and officials of power none except those who possess, with other qualifications, business ability?

In discussing questions relating to national expenditure, none of us would advocate limiting the amount required to be paid for the protection of the country, or the promotion of the welfare of the people. Disbursements of this character are not extravagant. We are rich, and, by the continuance of a proper policy, the wealth of the nation will rapidly increase, and we can, therefore, afford to expend whatever is actually necessary. This is true economy, and in the end results in a great saving of capital.

Apropos to this subject, it may be said we should create and maintain an adequate army and navy. We are deficient in this respect. We have an effective navy, but its capacity is much below the standard that should be maintained. We should especially maintain

a better navy—one equal, at least, in every respect to that of any other nation. So far as the army is concerned, a comparatively small number of regular troops, together with a large force of reserves, properly trained, with adequate supplies for use in times of emergency, such as General Wood and others advocate, would probably be sufficient. But we should be prepared at all times to protect our borders on the sea and also our commerce wherever it extends.

After the troubles growing out of the European war are over, there will be a general struggle, however good-natured, for export business. Our exports should materially increase, and large numbers of ships flying the American flag should be placed in service, and they will be if appropriate governmental encouragement is extended. Ownership by the Government is not alluded to. We must not remain in a position which permits the navy of any other individual country to dominate the seas. Whatever the disposition and intention of the rulers of other nations or those in high authority may be, there would be occasions when arbitrary action by local officials coming in contact with those peculiarly interested in a special question, precipitated by circumstances, might be very detrimental to the interests of an American merchantman involved. We have reached a position of great power throughout the world, and this will be even more potential if we are prepared physically to make good our assertions in favor of the fair treatment of all matters we are called upon to decide. We must demand and insure the right to transport our goods freely across the seas, and further, that all sea-ports shall be kept open for the delivery and receipt of every merchantable commodity.

Our country must never provoke controversy nor act from selfish or immoral motives. We love peace and we hate war, but under present conditions, which it is to be hoped may speedily change, we must be prepared to defend our rights.

The business relations between the United States and foreign countries before and after the war are important to be considered at this time in connection with the paramount topic of the day, namely, the attitude which should be assumed and maintained by this country. The business men are tremendously interested in this question, and it is growing and will continue to grow in importance during the next few months. Figures bearing upon this subject are illuminating and instructive. The commerce between the United States and Austria-Hungary, Belgium, France, Germany, Great Britain, Italy, and Russia in Europe, respectively, for the fiscal years ending June 30, 1910, to June 30, 1914, inclusive, aggregated \$9,435,593,143, and the balance of exports over imports amounted to \$2,293,623,483.

We would be dull of conception if we failed to comprehend the importance of these trade relations; and any act on our part which might tend to sever the connections, or any of them, or to interfere with their natural growth, should be condemned as unworthy and unintelligent. For many years we have been striving to cultivate a spirit of friendship and confidence with our brethren across the seas, because, among other reasons, we realize it is for our pecuniary benefit. This has been especially true of the iron and steel interests, and, except for unreasonable and partisan criticisms, not necessary now to locate, much could have been done along legitimate lines to make further progress in the establishment of a permanent international basis of business friendship, which would be of advantage to all and of injury to none. It is sufficient to say that our trade with foreign nations has been increasing, with prospects for more rapid and larger advances and with the expectation of the balances in favor of the United States becoming augmented from year to year. I do not, of course, refer to the volume of business at the present time, for it is abnormal.

Now, what should the United States prepare for? If we conduct our affairs properly, if we make the most of our opportunities, if we co-operate with one another, if the Government and governmental agencies and the business people are allies one with the other, we shall become stronger and richer and more potential in our influence, and we shall be able to take a place in the van of nations, progressing toward results more satisfactory than ever before. I made the statement long before the war, and I have made it since, that we might become the leading nation in finance, commerce and industry. I have recently read statements by financiers that we already occupy this position. I do not quite agree with this claim, notwithstanding what has occurred in Europe

\*From his Presidential address before the American Iron and Steel Institute.



during the last year; that is, I do not think we are thus permanently established; but it seems certain that we may accomplish this result if we properly conserve our resources. We may hold either a primary or a secondary place, depending upon the wisdom, energy and discretion of our people. Much depends upon our management of affairs. There has never in the history of the world been so great a necessity for wise and disinterested statesmanship or for loyal and honorable conduct on the part of the practical business men as at present. Will we do our part? Are we ready to devote our time, our attention and our energies in the performance of our patriotic duty?

In connection with this subject, it is natural to consider the question of neutrality on the part of our nation toward each of the belligerent nations. Probably all of us will agree that, up to the present time, the attitude of the President with respect to this question has been admirable. He has shown himself to be a true patriot and a wise statesman. In my opinion, the United States has not been called upon to do or to say anything with reference to the war or any of the participants which has not been said or done. Every duty devolving upon the United States has been performed. We may have sympathies or prejudices or notions concerning specific acts or expressions on the part of some or many of the foreign nations, but, in my judgment, they have not required and do not require any act or expression on our part which has not been done or made. We have fulfilled every obligation imposed upon us by all treaties or agreements expressed or implied. When the questions which have been discussed and the final and logical conclusion shall have been reached in the light of all the evidence, including the full history of the transactions involved, I think it will be found my statement is fully justified. It is to be hoped, and I think we may expect, that nothing will occur to disturb the international relations existing at the present time between the United States and each of the foreign nations. It is unthinkable that we should become involved in war with any of the foreign countries at this time. When the present combat shall have ceased we must be on a friendly footing with all the nations. If our financial and business conditions are such as we claim they may and ought to be, we may be profitable customers of each of the foreign nations in supplying our necessities and comforts, and they in turn will patronize us. There will be, no doubt, vigorous competition, and the foreign nations will do their utmost to secure and retain the trade of agricultural countries who are large importers of manufactured products. However, it is not active competition we fear, provided we are properly protected by our Government. All we need and all we ask is an open field and a fair chance, on an equal basis, to compete with all nations for a reasonable share of the world's business. We extend to the people of all foreign countries the hand of business friendship, and we ask for their friendship in return. And we ask for similar reciprocal relations between the leading political forces of the United States and ourselves to the full extent that we deserve.

In the last analysis, the conclusion will be reached by the vast majorities that the best interests of the peoples of all nations will be promoted if the present international equilibrium is substantially preserved. The destruction of any nation would be detrimental to the best interests of all others.

I will add a few words in regard to present business conditions. As you know, during the last three years I have not been especially encouraged as to the immediate future, but as to the long future I have been a consistent optimist, for reasons which have been given from time to time. Assuredly we may build our hopes and expectations on the opportunities which this country offers. It seems to me at the moment the outlook for improvement in our lines of activity are better than they have been for more than a year. This is undoubtedly in part the result of increased exportations at fair prices, due to the European wars, but in my opinion also because of a change in sentiment toward business, which now seems apparent.

The captain of industry is again to be popular in the United States, and this has been brought about by the efforts of business men to satisfy the public in regard to their reasonable demands. The individual, or aggregation of individuals, or the nation, whose standard of conduct conforms to the golden rule will on the average secure the largest pecuniary success.

The clouds of distress, suspicions and hostility are breaking. In the rift we may see the sunlight of better things and better conditions.

## AMERICAN IRON AND STEEL INSTITUTE.

### Spirit of Hopefulness Manifested at the General Meeting Last Week in New York.

The spirit of hopefulness manifested by President Elbert H. Gary in his address before the American Iron and Steel Institute at its general meeting last week in New York was the tone of the speeches at the banquet, which was attended by 450 members. Charles M. Schwab of the Bethlehem Steel Co. said:

"The nation is at the beginning of a prosperous era. The President of the United States has already said that business men should co-operate to foster their trade abroad, and I believe that after three or four years of bad business we are now entering upon a period of good business."

Mr. Schwab was followed in informal talks by James H. Hoyt, John A. Penton, Willis L. King, Joseph G. Butler, Jr., and others. The formal paper of the evening was by Dr. Lloyd Noland, superintendent of the department of health of the Tennessee Coal, Iron & Railroad Co., who, with stereopticon illustrations, sketched the efforts that the company had made in the past few years to better the general welfare of its employees. He said:

"The Tennessee Coal, Iron & Railroad Co. is engaged in the operation of ore mines, coal mines, quarries, blast furnaces and steel plants. These mines and plants are distributed over a wide territory, though by far the greater portion are within a 15-mile radius of Birmingham. About 15,000 men are employed in these operations, a little over one-half of whom are negroes. About 34 per cent. of the employees live in houses owned by the company. Of the employees living in company houses, about 65 per cent. are negroes. A working force of 15,000 men with their families represents a population of about 45,000, of whom 68 per cent. live in the cities, towns, villages and countryside contiguous to the mines and works, in houses not owned by the company."

"Generally speaking, all welfare work comes under the management of the department of health of the company, closely associated with which is the company's educational department. For convenience of handling the health department is separated into three divisions, namely, sanitary, medical and welfare."

"The sanitary division is responsible for the following: Purity of all water supplies; the care of closets and the disposal of fecal matter; the collection and disposal of trash and garbage; the cleaning and draining of streets and alleys, including weed and grass cutting; the supervision of all house premises; the elimination of mosquitoes; the inspection of stables and the prompt disposal of all stable manure for fly prevention; the isolation and quarantine of cases of contagious and infectious disease; the supervision of milk supplies, and the inspection of commissaries to insure proper protection and purity of all food supplies."

"The medical division is organized with the idea of furnishing medical and surgical care for all employees except those residing in Birmingham proper. The work of this division is divided into 20 districts, each of which is under the charge of a district physician, who reports direct to the head of the department. These physicians, with their assistants, comprise a force of 35 doctors and 15 nurses, all of whom are employed by the company on a salary basis to devote their entire time to the care of employees of the company and their families. The duties of these physicians and nurses embrace the following:

"Physical examination of all applicants for employment."

"Physical examination of all school children, together with frequent inspections of the schools."

"Close co-operation with the sanitary division in general health work."

"The care of all sick and injured employees and their dependents, without regard to the nature of the illness or whether or not injury was received in line of duty."

"The welfare division has charge of the clubhouses located in various towns; the conduct of courses of cooking, sewing and practical housekeeping for both school children and adults; the kindergarten instruction

of children below the school age; home visiting and instruction by social workers and school teachers; supervise play at all playgrounds and schools, and supervision of various social organizations, such as boy scouts, camp fire girls, mothers' clubs, young people's clubs, etc."

"The educational department is charged with the operation of all company schools. These schools, 24 in number, are maintained or partly maintained by the company in co-operation with the county, and are divided into 12 schools for whites and 12 for negroes, with a total enrollment of 3311 pupils, under the charge of a superintendent employed by the company."

The formal papers at the regular sessions of the Institute were by Andrew E. Maccoun, superintendent of the Edgar Thomson blast furnaces of the Carnegie Steel Co., on "Blast Furnace Advancement;" by Jerome R. George, chief engineer of the Morgan Construction Co., on "Merchant Rolling Mills;" by Edward F. Kenney, metallurgical engineer of the Cambria Steel Co., on "Commercial Production of Sound and Homogeneous Steel;" by Charles J. Bacon, steam engineer of the Illinois Steel Co., on "Waste Heat Boilers," and by Daniel M. Buck, metallurgical engineer of the American Sheet & Tin Plate Co., on "Recent Progress in Corrosion Resistance."

## Supply and Machinery Manufacturers.

At the annual convention this week at Philadelphia of the American Supply and Machinery Manufacturers' Association, which will meet jointly with the National Supply and Machinery Dealers' Association, addresses will be made by President C. H. Jenkins of Louisville, Ky., and President Charles S. Fairquhar of the two associations, respectively, and Edward James Cattell, city statistician of Philadelphia, and formal papers will be presented by C. M. Ripley of the Richard D. Kimball Company of New York, on "The Power Problem;" by Frederick A. Hannah of New York, on "Organization;" by P. F. Bryant of Wellesley Hills, Mass., on "Fundamental Business Conditions;" by Dr. Lee Galoway of New York University, on "Stevens Bill and the Desirability of Enabling Legislation for Resale Prices," and by Dr. Robert Grimshaw of New York University, on "Cost Reduction America's Only Salvation." A number of social entertainments have been provided for the visitors.

## Fuller's Earth in 1914.

The fuller's earth industry showed considerable progress in 1914, with an increase in both output and value, compared with 1913. The production advanced from 38,594 short tons in 1913 to 40,981 short tons in 1914, and the value from \$369,750 in 1913 to \$403,646 in 1914, according to the United States Geological Survey.

Florida is the leading State in the production of fuller's earth, more than 75 per cent. of the total quantity and value having been reported from that State in 1914. The average price of Florida earth was \$10.07 a ton, compared with \$9.91 a ton for all Eastern States and \$9.85 a ton for the whole country.

The growth of the use of fuller's earth in this country is partly shown by the fact that the total imports during the 10 years, 1905 to 1915, were 56 times the total imports for the first 10 years, 1867 to 1876, and the average price per short ton has decreased from \$10.53 for the first 10-year period to \$7.67 for the last 10-year period.

## State Banks in Maryland.

J. Dukes Downes, Bank Commissioner of the State of Maryland, has issued a report of the condition of 135 State banks and trust companies, including 14 branches, at the close of business May 1. It shows total resources \$137,537,685.24, which includes loans and discounts, \$55,480,169.33; stocks, bonds, securities, etc., \$39,901,973.71; due from approved reserve agents, \$16,438,585.42; mortgages and judgments of record, \$11,268,798.52, etc. The capital stock paid in is \$15,818,629.83; surplus, \$12,775,029.00; undivided profits, \$3,695,549.83; due to banks, bankers, etc., \$4,279,653.07; demand deposits, \$56,893,634.39; time deposits, \$34,075,808.95; Baltimore city deposits, \$6,413,000, etc. Increase in total assets over last call, \$2,889,710.26.

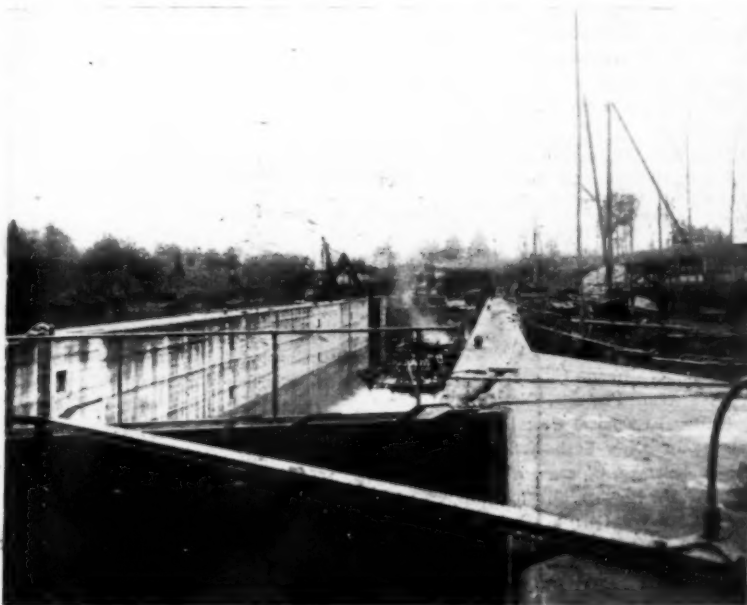
## Phases of Improvement of Cape Fear River in North Carolina



SHOWING LOCK NO. 1 UNDER CONSTRUCTION ON JUNE 3, 1914.  
The entire area is surrounded by a cofferdam of interlocking steel piling.



LOCK NO. 1, PRACTICALLY COMPLETED ON OCTOBER 28, 1914.  
Here is seen the lock chamber with all gates hung and being painted.



RAFT PASSING THROUGH LOCK NO. 1, DECEMBER 5, 1914.



GOVERNMENT YACHT "MERCUR" IN LOCK NO. 1, APRIL 27, 1915.

Probably all the citizens of Fayetteville are aware that the United States Government is doing some sort of canalization work on the Upper Cape Fear River. Much has been said about it by the papers in the past, and occasional reference is made to it now. Without doubt a large proportion of our citizens are ignorant as to just what is being done, the magnitude of the work and its great and far-reaching benefits to our city. Certainly the writer had a very vague idea of the work, and a visit to the first lock and dam at King's Bluff soon convinced him that his idea was not only very small, but also very incorrect. The following notes are a layman's impressions of a gigantic engineering feat, and are not intended to thoroughly familiarize one with what has been done, and how.

To get an idea of the size of this work it must be remembered that King's Bluff is just about at the head of tidewater in the river; that the river at that point is 320 feet wide. On the eastern bank of the river is an enormous abutment. This is of solid concrete, is about 60x70 feet on top and about 30 feet high above the water. It extends back into the bank and is anchored to the bank by means of steel cables attached to steel piles driven far back on the side of the river hill. This abutment extends out into the water about 15 feet. It is designed to protect the dam from being injured during high water.

The dam, which extends from this abutment on the eastern bank to the lock on the western side, is built

in three sections of about 93 feet each. These sections are constructed of heart pine lumber and are in the shape of cribs. Each crib is completed and placed in its proper position. It is then filled with thousands of tons of granite, which cause it to sink down into the river bed. To protect the bottom of the dam from water seeping through, a fence of solid tongued and grooved piling is driven just upstream about three feet in front of the dam. This piling is driven 15 feet below the bed of the river, and comes up to the surface of the river at low water. Just 15 feet downstream from the dam a similar fence of piling is driven to protect the dam from water which may come through under the dam at any place which may not be perfectly sealed.

The lock, which is on the western side of the river, is of reinforced concrete construction. The inside measurements are 40 feet wide by 200 feet long. The foundations of the lock walls are 15 feet below the bed of the river, and each wall is 25 feet wide at the river's bed. The walls are graduated to the top, where the width of the inside wall is seven feet and the outside six feet. The walls stand 30 feet high above low water. To get the foundations for the lock it was necessary to surround the entire location with a water-tight cofferdam. This was a difficult undertaking, owing to the presence of quicksand. Interlocking steel piling was used for this cofferdam. It is principle of this piling that when the pressure is decreased within, and consequently increased without, the piles lock with each other

and form a water-tight dam. When the water was pumped out of the area for the lock it was then possible to lay the foundations by sealing up the quicksand beds with concrete. Before the concrete foundations of the lock were laid hundreds of 15-inch pine pilings were driven to a depth of 35 feet. These pilings were cut off even with the bed of the river. Then the concrete foundations were laid on top of the pilings. This gives a basis which is absolutely permanent.

The appearance of the lock is that of a great rectangular box. At each end are the lock gates, each gate being 20 feet wide and weighing several tons. They are made of steel. The gates work and fit into each other very much the same as the double doors on a large bank safe. These gates can only be operated on slack water. An illustration will make that clearer. When a vessel is going upstream it enters the lock with the upper gates closed. The water is then at the same stage in the lock as it is below the lock. When the vessel is in the lower gates are closed. Then valves are opened in the upper gates, which raises the water in the lock to the level of the water above the dam. Then the upper gate is opened and the vessel moves out in perfectly still water. If a vessel is going downstream it enters the lock with the lower gate closed. The water is then at the level of the dam. The upper gate is closed and valves are opened in the lower gate, which lowers the water in the lock to the level of the water below the dam. Then the lower gates are opened and the vessel



The Pascagoula-Moss Point Northern Railroad, extending from Pascagoula to Evanston, Miss., 42 miles, has been leased to the Alabama & Mississippi Railway.

with the privilege of purchase within 20 months for \$110,000. The Alabama & Mississippi is related to the Vinegar Bend Lumber Co., and runs from Vinegar Bend, Ala., west to Leakesville, Miss., 17 miles, with an extension thence southward to a point within a few miles of the northern terminus of the Kansas City Lumber Co.'s road at Eden, Miss., which latter runs southerly to within 200 yards of the Pascagoula-Moss Point Northern Railroad at Evanston, Miss., on the New Orleans, Mobile & Chicago Railroad. Under the lease a connection with the Pascagoula-Moss Point Northern Railroad is to be built within four months, the lease taking effect July 1. CHAS. E. CHIDSEY.

### New Equipment, Etc.

Chesapeake & Ohio Railway has ordered 24 Mallet type freight locomotives from the American Locomotive Co. They will be built at Schenectady, N. Y., because, it is stated, the Richmond plant is being converted for the manufacture of war material. The railway has also ordered 4000 tons of rails from the United States Steel Corporation.

Texas & Pacific Railway is reported in the market for 10 switching locomotives and 6 freight locomotives, besides 10 passenger cars and 500 coal cars. It is also said that 5 more locomotives will be required.

Norfolk & Western Railway, according to a market report, contemplates placing orders for 1000 box cars.

Chicago & Alton Railroad has ordered 8000 tons of rails from the Illinois Steel Co., Chicago.

Western Maryland Railway has ordered 15 Mallet locomotives from the Lima (O.) Locomotive Corporation. The company is also in the market for 4 baggage cars, 8 passenger cars, 2 cafe-parlor observation cars and 1 parlor-buffet car.

Southern Pacific Railway has ordered 26,000 tons of rails from the Tennessee Coal, Iron & Railroad Co., Birmingham.

### Western Maryland Earnings Increase.

The Western Maryland Railway Co. has published its statement of earnings and expenses for April. It shows total revenues \$793,259, increase as compared with the same month of last year \$108,486; total expenses \$534,346, decrease \$112,202; net revenues \$258,912, increase \$220,686; operating income after taxes \$232,412, increase \$218,686. The figures for the 10 months of the company's fiscal year from July 1 last to April 30 show total revenues \$7,000,725, increase as compared with the same period of last year \$113,519; total expenses \$5,159,043, decrease \$1,187,735; net revenues \$1,841,682, increase \$1,301,254; operating income after taxes \$1,580,682, increase \$1,200,854.

### Texas Railroads' Earnings.

A report from Austin, Tex., says that statistics covering 28 of the principal railroads in that State for the nine months of their fiscal year up to March 31 show gross earnings of \$86,386,165, decrease as compared with the corresponding period of last year \$1,900,316; operating expenses \$66,933,619, decrease \$3,079,568; net earnings \$19,454,546, increase \$1,179,252.

### Storage Yard at Charleston.

The storage yard which the Southern Railway will build at Charleston, S. C., in connection with its coal-handling plant will have a capacity of 400 cars, and the company has already made arrangements for the grading, which will be exceedingly light. Company forces will do the tracklaying.

### Cumberland & Manchester Railroad Co.

The Cumberland & Manchester Railroad Co., capital stock \$50,000, has filed incorporation papers in Kentucky to build its projected line from Barbourville to Manchester, Ky., 24 miles. The headquarters of the company will be at Manchester. The president of the company is C. F. Heidrick and the vice-president F. N. Heidrick, both of Brooksville, Pa., and G. M. Richards,

Jr., of Clarion, Pa., is secretary and treasurer. Other directors are R. E. Heidrick of Clarion, Dr. J. A. Haven of Brooksville, W. D. Clark of Franklin, Pa., and C. B. Lytle of Manchester. As heretofore published, this projected line will develop a timber and mining region.

### Railroad Notes.

The St. Louis & San Francisco Railroad has established a gasoline motor car service in and out of Kansas City for the accommodation of people along its branch to Clinton, Mo.

J. W. Wassum has been appointed superintendent of the Columbia division of the Southern Railway at Columbia, S. C., to succeed G. V. Peyton, resigned. Wm. Maxwell has been appointed superintendent of the Spartanburg division, also at Columbia, to succeed Mr. Wassum.

The Pennsylvania Railroad Co. announces the following appointments: Wm. R. O'Hara, district freight solicitor, Charlotte, N. C.; H. T. B. Runk, district freight solicitor, Jacksonville, Fla.; Wm. R. Flounders, Jr., and James G. Parnell, freight solicitors, Baltimore, Md.; J. Berkeley Tilley, traveling freight solicitor, Atlanta, Ga.

## Good Roads and Streets

### SOUTHERN HIGHWAY ACTIVITIES.

#### Details of Week's Progress in Improvements in City and Country.

Further details of road and street undertakings and bond issues mentioned below are given under the headings Construction Department and New Securities, published elsewhere in this issue.

The MANUFACTURERS RECORD invites from its readers information about road and street work projected or under way, photographs of good roads and discussions of matters pertaining to the betterment of the highways of the South.

#### Bonds Voted.

Beaumont, Tex.—City voted \$85,000 bonds to pave streets.

Charleston, W. Va.—Kanawha county voted \$750,000 bonds to construct roads.

Huntington, W. Va.—Cabel county voted \$600,000 bonds to construct roads.

West Palm Beach, Fla.—Palm Beach county voted \$750,000 bonds for road construction.

#### Bonds to Be Voted.

Anderson, Tex.—Grimes County Road District No. 6 votes June 15 on \$150,000 bonds to construct roads.

Christiansburg, Va.—Montgomery county, Christiansburg district, votes July 6 on \$100,000 bonds to improve roads.

Decatur, Tenn.—Meigs county will vote on \$100,000 bonds to construct road.

Fairmont, W. Va.—Marion county, Fairmont district, votes June 21 on \$100,000 bonds to construct roads.

Monticello, Ky.—Wayne county votes July 24 on \$200,000 bonds to build 75 miles of road within next two or three years.

Sweetwater, Tex.—City votes June 10 on \$5000 bonds to improve streets.

Sumter, S. C.—City will vote on \$250,000 bonds to pave streets and sidewalks.

#### Contracts Awarded.

Alexandria, La.—City awarded \$93,232.80 paving contracts.

Baltimore, Md.—City awarded \$12,552.75 paving contracts.

Bryson, City, N. C.—Swain county awarded contract for eight miles of grading; about 80,000 yards; one-third rock, balance earth.

Dallas, Tex.—City awarded contracts aggregating \$130,000 to pave streets.

Louisville, Ky.—City awarded \$18,500 paving contracts.

Louisville, Ky.—City awarded \$3899.75 paving contract.

Marshall, Tex.—Harrison county awarded contract to construct 25 miles of gravel road; \$200,000 available.

New Orleans, La.—General Realty Co. awarded \$11,000 contract to lay Schillinger sidewalks throughout property.

Richmond, Va.—City awarded contract for 70,000 yards of grading.

Sheridan, Ark.—Grant county Road Improvement District No. 1 awarded \$103,941.43 contract to construct 28 miles of gravel road.

Tuscaloosa, Ala.—State awarded contract to construct 12 or 15 miles of road; gravel, with turpentine or bituminous binder; \$17,000 available.

#### Contracts to Be Awarded.

Amite, La.—Tangipahoa parish receives bids until June 15 to construct 8¼ miles of dirt road; about 30,000 yards dirt.

Asheville, N. C.—City receives bids until June 10 to construct about 5000 square yards of concrete sidewalks, etc.

Baltimore, Md.—State receives bids until June 22 to construct about 4.12 miles of State highway.

Fayetteville, Tenn.—City will expend \$20,000 to improve streets.

Grafton, W. Va.—City invites bids until June 14 for 2000 square yards of standard brick paving, 361 linear feet of concrete curb, etc.

Junction, Tex.—Kimble county receives bids until June 14 to grade and gravel seven miles of streets.

Maysville, Ky.—City receives bids until June 7 for 38,000 square yards paving and 19,500 linear feet concrete curb.

Morganton, N. C.—City receives bids until June 7 to construct 7000 square yards of concrete paving and 5000 linear feet of concrete curb.

Richmond, Va.—City appropriated \$25,619 for street improvements.

Rockville, Md.—Montgomery county receives bids until June 15 to construct 1.38 miles of State-aid road.

Vanceburg, Ky.—Lewis county receives bids until June 5 to improve seven miles of road.

Williamsburg, Ky.—Whitley county will construct 62 miles of pike roads.

### Report of the J. G. White Companies.

The annual report of the J. G. White Companies for the year 1914 has been issued, and the amalgamated balance-sheet shows total assets of \$5,523,244.29, which includes good-will, contracts, purchase of business, etc., \$1,515,854.72; securities owned and syndicate participations, as valued by special committees of directors, \$2,959,240.39; cash in banks and on hand, \$502,837.86, besides other items. Capital stock issued is \$4,200,000, out of a total of \$8,000,000 authorized. Of that issued, \$1,500,000 is common and the rest preferred. Surplus is \$558,901.66, but it is further stated that a revaluation of securities owned April 24, 1915, would show an increase in surplus of over \$250,000 and bring the present surplus up to over \$800,000. Chairman J. G. White says that during the last few months new business is encouraging, though not large, volume has been arranged, and in the opinion of the officers the prospects seem better than at any time since the beginning of the war.

### George Westinghouse.

The notable achievements of George Westinghouse in the 68 years of his life are discussed in sympathetic and inspiring style by Arthur Warren in an attractive volume, which also presents by separate dates the important events of his life and the list of honors conferred on him by various institutions, organizations and rulers.

### For Texas Industry.

At the call of State Labor Commissioner C. W. Woodman of Texas, a convention will be held June 22-24 at the Chamber of Commerce, Fort Worth, of manufacturers, jobbers, business and laboring men for the purpose of exhibiting the possibilities of Texas manufacturing and to encourage a full realization of them.



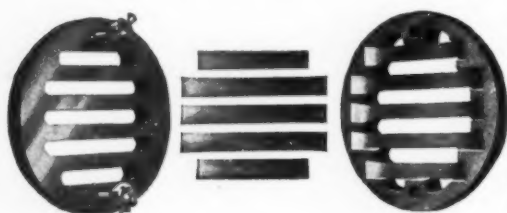
## MECHANICAL

Illustrations and descriptions having news value pertaining to developments in machinery, mechanical devices and inventions will be considered for use in this department.

### Laidlaw Feather Valve.

The solution of compressor valve troubles is claimed to be found in the patented Laidlaw feather valve developed by the International Steam Pump Co., 115 Broadway, New York. This valve is said to differ so radically from previously accepted ideas of air compressor construction as to justify itself as an object of considerable engineering interest. It was the outcome of four years' experimental and development work toward the perfection of a voluntary valve which would have advantages of efficiency and quietness.

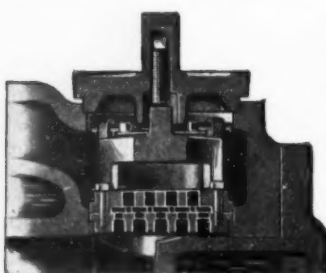
Essential elements of the valve, which is composed of thin strips of non-corrosive alloy, are: A ground face seat provided with slots, over which slots rest the valves proper, which are simply strips of thin flexible ribbon steel similar to clock-spring stock, though without any marked degree of temper. These valves are



LAIDLAW FEATHER VALVE STRIPS.

retained in their proper position, but not rigidly held at any point, by curved milled guards, also provided with slots for the egress of air.

Three unique characteristics are claimed for this type of construction: In operation the valve strip bends



SECTIONAL VIEW OF LAIDLAW FEATHER VALVE.

away from the seat to permit the passage of air, rising in the middle but remaining in practical contact with them at the ends, producing what the company terms "a seat by contact." The valve strips are light and flexible, offering a minimum resistance of both inertia and friction to the passage of air, a minimum destructive action in closing and tightness after closing, due to the intimate contact with the ground seat permitted by the flexible character of the strip.

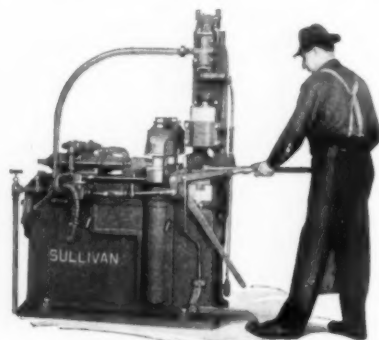
As a result of these two foregoing characteristics, the valve is said not to be restricted in lift from considerations of noise and destructive action, and can be designed to permit opening through the lift equal to that through the seat, giving a combination of freedom of passage to air, quietness of operation and durability of action.

The company reports that careful tests made each week over a period of a number of months on an 800-foot two-stage compressor fitted with these valves and operating on Laidlaw shop service have shown that these valves give an actual air delivery as measured by low-pressure orifice approximating by 1 per cent. the delivery indicated by cards; or, in other words, that all losses from initial heating and leakage which ordinarily are regarded as creditable if under 5 per cent., do not exceed 1 per cent. in the feather valve.

The International Steam Pump Co. states that its Laidlaw-Dunn-Gordon plant at Cincinnati, O., has booked and shipped a large number of compressors equipped with this valve, the operation of which in service has been gratifying without exception. The valve is offered for all services, both power-driven and steam-driven.

### An "All-Hammer" Drill Sharpener.

A new machine for making and sharpening drill bits is now being manufactured by the Sullivan Machinery Co. of Chicago. The Sullivan sharpener performs all



SULLIVAN DRILL SHARPENER.

operations by compressed air power, including that of holding the steel while it is being upset. The machine is shown in the accompanying illustration. It consists of a heavy rectangular frame, supporting the horizontal or upsetting hammer, and of an upright standard, set on the front end of the frame, which carries the vertical or forming hammer. The sharpener has a floor area of 5x21½ feet, is 6 feet high and weighs 4000 pounds.

The steel is held by a vise, operated by air power. This vise is shown just in front of the horizontal hammer. It consists of two massive yokes at top and foot, joined by two heavy steel columns. The upper yoke and the anvil or seat below it are recessed to receive the removable steel clamping dies. The vise is operated by an air cylinder in the rear end of the frame 12 inches in diameter. To close the vise, air forces the piston forward, carrying ahead of it a crosshead block, to which is pinned one end of a link or toggle. The other end of this link is fastened to the lower vise yoke. This link thus drives the yoke down, carrying the upper yoke with it and closing the dies with great force. When air is admitted in front of the piston the crosshead travels back, pulling the link and lower yoke up and opening the vise.

The action resembles that of a knuckle joint, and with air at 100 pounds pressure is said to provide a clamping force of over 100,000 pounds.

The two hammers consist of rock drill cylinders, equipped with Sullivan air-thrown differential or

piston and piston rod, to the end of which is fitted a guide block, which carries the upper of two square forming or swaging dies. The lower die is keyed to a similar anvil or block that rests on the frame. The vertical piston and die are normally held in a raised position by a spring and pin, which holds the valve away from its lower seat, thus maintaining live air pressure in the lower end of the cylinder.

In making new bits from blank stock the steel is first heated, then placed in the clamping dies, worked by a lever, which have a flare to permit upsetting to the widest gauge desired. When the vise is shut, further depression of the lever admits air to the horizontal hammer. A few blows from the dolly upsets the steel slightly. The lever is then raised, stopping the hammer and opening the vise. The vertical hammer is then started by a foot treadle to flatten out the wings or ears. Two or three alternate strokes of the upsetting and forming hammers are claimed to produce a finished bit, with perfect shape, uniform width and thickness of wings, square corners and true cutting edge.

Drill shanks of any kind may be made on this machine as well as bit, and any kind of forging work that can be done on a small steam hammer, forging bolt heads, etc. The lever hanging down below the hand lever is a device for pulling pins out of hollow steel shanks. These pins are driven in to reopen the hole after this has been closed in upsetting the lugs or collar.

Lubrication is practically automatic, and automatic cleaning jets of exhaust air blow the working surfaces clean of scale and dirt. As indicated above, the Sullivan sharpener is compact, and can be used underground in a mine station or tunnel without foundation, if necessary. It is rapid in action, economical of air, and requires no waste movements by the operator, as all levers are at the front end of the machine.

An important feature claimed for the sharpener is that it performs all work by hammering. This gives the steel the fineness of grain, toughness and ability to resist wear and shock, that are characteristic of all forged products.

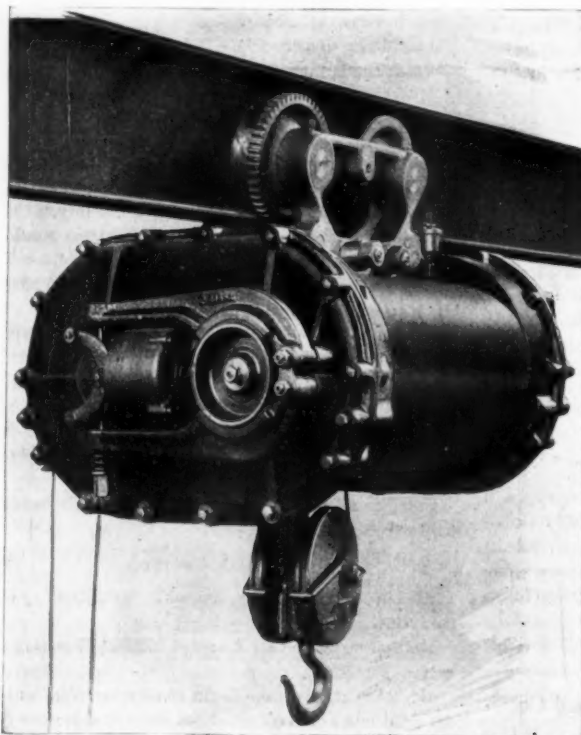
### Link-Belt Electric Hoist.

An important and highly efficient device for reducing handling costs and the saving of time is illustrated in the operation of the electric hoists manufactured by the Link-Belt Company of Philadelphia, Chicago and Indianapolis. The hoist is of the suspended trolley type, and is built with plain trolley, hand-propelled; geared trolley provided with pocket wheel and hand chain for traveling; motor-driven trolley, with or without an operator's cage suspended from the machine, and it is also made in the form of a shackle or hook suspension stationary hoist.

Advantages claimed are exceptionally small headroom required, compactness, and has all parts fully enclosed, yet readily accessible.

The cut-steel gears provided run in oil and automatically splash-lubricate all bearings. A dynamic braking system is used, where the descending load drives the hoisting motor as a generator and uses it for a brake, making it especially adaptable for lifting and lowering flasks, patterns and ladles in foundries. When the current is cut off or otherwise interrupted a powerful solenoid brake automatically holds the load. An adjustable upper limit "stop" automatically shuts off the current and applies this brake when the load reaches its predetermined limit of travel.

The foregoing description applies particularly to single-drum hoists. The company also builds double-drum, mono-rail grab-bucket hoists with operator's cage, for handling materials in bulk. Other apparatus of this character designed and built by the Link-Belt Company include elevators and conveyors for handling all kinds of materials, locomotive cranes, coal tipples, coal washeries, hoisting and unloading machinery, power-transmission machinery and elevator conveyor and power-transmission chains. Catalogues of all these products will be sent to interested persons on request to the company.

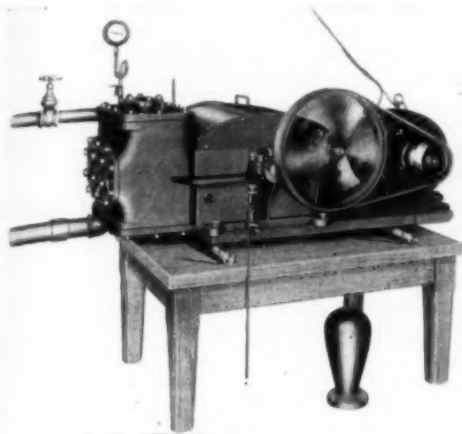


ONE FORM OF THE LINK-BELT ELECTRIC HOIST.

"Spool" valve motion. The horizontal hammer has a floating piston and a loose shank or distance piece, upset on the end, inside the cylinder to receive the blows of the piston, and blank at the front end to receive a loose dolly. The vertical hammer has a regular rock drill

### Luitwieler Triplex Pumps.

In order to produce the highest results in pumping systems, a pump, it is said, must be balanced in rotation and in the reciprocating parts, must be free from vibration and the water must be kept moving in constant volume and pressure without variation. These features are said to be incorporated in a new type of



MOTOR-DRIVEN TRIPLEX PUMP.

triplex pump that is being developed by the Luitwieler Pumping Engine Co. of Rochester, N. Y.

The driving mechanism of the Luitwieler triplex pump consists of three symmetrical cams placed upon a shaft 120 degrees apart. The shape of these cams is claimed to be such that the water is moved at constant speed and pressure throughout the entire cycle, while the shaft and cams rotate in perfect balance at any desired speed. The cams work against rollers in opposed directions in a cross-head to which the piston-rod is attached. These anti-friction rollers work on pins with bearings at the outer ends. In the Luitwieler double-acting pumps the cam shaft is floating in its bearings without pressure at opposed sides. Although there is no air chamber on the pump, the water pressure is said to be absolutely constant. All the driving mechanism is enclosed in a bath of oil, requiring little attention. An ingenious device separates and carries away any water that may leak from the packing glands into the oil case. The flywheel which is usually used on pumping engines is dispensed with by placing the Luitwieler triplex pump upon the crank case of a cross-compound Corliss engine with engine crank set on quarters. Other advantages claimed for the Luitwieler pumps are their light weight and large capacity. These combinations are said to effect a saving in cost of foundations, construction, floor space, weight, economy of operation, etc.

### Electricity in Shipbuilding.

The electrification of the F. O. Smith Shipbuilding & Drydock Co.'s drydock at Norfolk, Va., is a notable example of the saving that can be effected by the use of electricity in shipyards. Previous to July, 1912, the drydock was operated by old-fashioned bucket pumps. With this equipment practically half a day was required to make a haul and occasionally trouble was experienced with the operating machinery. Being aware that with these defects the dock could not meet with great success, the owners sought for means to improve the operation and shorten the time required to lift a vessel. As a result of investigation it was decided that electrically-driven pumps should be installed. Accordingly, twelve 20-horse-power 1135 R. P. M. Westinghouse electric vertical motors coupled to 10-inch Morris centrifugal pumps were installed. The installation met with such immediate success that in February, 1915, another section was added and six additional pumping units, duplicates of the ones previously installed, were purchased and placed in position.

It is now possible with this new equipment to lift a vessel high and dry in 17 minutes at an energy cost of about \$4.50, whereas with the old equipment it required half a day and cost from \$12 to \$15.

The dock will accommodate anything afloat that is not over 200 feet long on the keel blocks or 3000 tons dead weight, and is expected to become the means of

increasing the revenue at the port of Norfolk by thousands of dollars annually.

In addition to the electrically-driven pumps on the dock, the shipyard is fitted up with a very complete line of shipbuilding machinery, including air tools, modern machine, boiler and blacksmith shops, the only marine railway in the world with a concrete foundation, a saw-mill and a Westinghouse electric welding outfit equipped also for cutting.

### Thermo Syphon Steam Trap.

A new design of steam trap which is claimed to be applicable to any type of steam-heating system for draining and handling condensation under complicated conditions of pressure is to be placed on the market shortly by the Lytton Manufacturing Corporation of Franklin, Va., manufacturer of vacuum traps, lifting, return and steam traps, reducing and blow-off valves. As some exclusive features embodied in the new design are covered by patents of 1905 and 1906, the device is not entirely new and untried. The company states that heating experts who have studied the apparatus and its functions are enthusiastic over the successful manner in which it overcomes one of the big heating difficulties.

Circular No. 14, recently issued by the company, contains the following description of the Lytton thermo syphon steam trap:

"This appliance eliminates all air, promotes circulation, collects condensation and automatically discharges same direct into the boiler as rapidly as it accumulates, irrespective of the pressure or vacuum existing in the boiler or system. Radiators cannot become air bound or flooded, hammering in the system is permanently eliminated, and the trap positively prevents burning of boilers due to condensation becoming locked in the system. No receivers or air relief tanks are required, nor are pumps necessary for delivering water from the return lines to the trap.

"The trap can also be used to great advantage for draining heating systems and discharging the water to



LYTTON THERMO-SYPHON TRAP.

sewer or tank. If sufficient pressure is carried on the system, or live steam is available, the trap will lift the returns from radiators and other drains that are located below the boiler water line, and discharge the condensate into another thermo trap on top of boiler, which in turn would discharge into the boiler.

"The method of connecting up the trap is a very vital detail, and constitutes a system which we have fully covered by patents. We furnish prints showing piping arrangement and manner of applying the trap to the respective systems, and are always glad to work out any engineering details that may be submitted to us in connection with the use of these traps. The trap is connected up so that bottom of same is three inches to six inches above the maximum boiler water line, and as headroom is usually limited, this point will be appreciated. By inserting a piece of two-inch pipe in boss on bottom of trap and screwing an ordinary flange on the other end of pipe, to act as a base, a strong and inexpensive floor stand can be quickly constructed by the pipe fitter."

Operation of the compound steam and vent valve is effected by the rise and fall of a ball float which moves a weight rocker, and this in turn carries the weight to the right or left beyond a vertical position. When the float goes to the bottom of the trap the weight falls to the right and closes the steam valve and opens the

vent, and when the float rises to the top the weight tumbles to the left and closes the relief and opens the steam valve. Buffer springs absorb the shock of these movements and render the operation practically noiseless. An exclusive feature claimed in connection with the design of the float is the fact that it always remains in direct communication with the atmosphere, and any moisture that may sweat through the metal is ejected on each upward movement of the float through a port provided for that purpose.

## FOREIGN NEEDS

Machinery and equipment wanted abroad are mentioned in many letters received by the MANUFACTURERS RECORD, which is so widely read in foreign countries that we are in constant receipt of many letters from all parts of the world. For the benefit of our subscribers seeking foreign trade we publish the following extracts from recent letters:

### Opportunities for Italian Trade.

Luigi Aubert, Via Vassalli Eandi 32, Torino, Italy, writes to the MANUFACTURERS RECORD as follows:

"I believe it will interest many American manufacturers, and that I shall be able to start, through the MANUFACTURERS RECORD, a direct connection with them. Let me know whether there are in your country mills of cotton texture and silk cotton to make ladies' gloves and mills of relative 'poussoir' either of celluloid and metal or only metal. In favorable case, please get sent me offerings of both of them, with samples and prices, possibly c. i. f. Genoa. Having a thorough acquaintance with industrial and commercial customers and able to produce first-rate references, I wish to enter business connections with important and reliable American firms, either for representation or for direct purchasing.

"Firms that handle every kind of metals, wrought metals, copper and brass wire, aluminum, raw skins and leathers, raw cotton, coal, industrial machines, electric machines, railroad material, millstones, vehicle axis, steel and iron pipes or every other American article of strong production liable to compete favorably with European products, are invited to write.

"The consequences of the terrible European conflagration will have an extraordinary influence in the industrial and commercial field.

"Italy, that depended so much upon English and German production, will be in the near future the ideal market for the United States, which no doubt will be the real winner of the war.

"Now is the time to conquer the Italian market."

### Bulgaria Wants American Products.

S. B. Aftalion, P. O. Box 57, Roustchouk-Sofia, Bulgaria, writes to the MANUFACTURERS RECORD as follows:

"I have special interest for cottonseed oils, box-calf leather, wire nails, rubber shoes, etc., and should you be so kind to bring me in touch with some reliable manufacturers of these products (probably belong to your readers), I shall be obliged and would then apply for their general sales agency for Bulgaria. America is pushing the sale of all its products to our country since the European war, and I can assure you that the preference will be positively reserved to your manufacturers if they deal with our people through my medium. You will certainly have realized since the Balkan war that Bulgaria is the most reliable country on the Balkans, and that full confidence prevails everywhere, enough if the business is performed on a serious basis. First-class British and continental references are at your disposal."

### Iron, Steel, Wire, Etc.

H. E. Johnson, Room 3, 12 Melinda street, Toronto, Ontario, Canada, writes to the MANUFACTURERS RECORD as follows:

"I have inquiries from England for the following material, and shall be glad to receive quotations and terms from your clients; prices should be ex-ships tackle, Manchester: 5,000 tons of steel as per following specifica-



tions: Billets 2 to 4 inches square, rising by  $\frac{1}{4}$ , 2 and 3 inches square, 16 to 18-foot lengths, 4 inches square, 2-foot 6-inch to 3-foot 6-inch lengths; open-hearth basic steel; approximate analyses as follows: Carbon 0.8 to 1.2 per cent., phosphorus not over 0.05, sulphur not over 0.05, manganese 0.50 to 0.60 per cent. Additional inquiries as follows: Billets for rolling into ships; sheet bars for rolling into sheets; basic pig-iron; hematite pig-iron; charcoal pig-iron; steel  $\frac{1}{4}$  inch to 3 inches round;  $\frac{1}{4}$  inch to 3 inches square;  $1\frac{1}{4}$  inch flat up to  $8\frac{3}{4}$  inches; mild steel plates up to 6 feet long and from 12 to 36 inches wide and from  $\frac{1}{2}$  inch thick down to 26 gauge; also flat iron bars, all sizes and thickness; mild steel wire. Trusting you will give this publicity, I would appreciate names and addresses of larger mills in United States, so I can communicate direct, giving you credit for the information."

### Trade Opportunities in Brazil.

Nogueira & Garriga, 100 Alfandega street, Rio de Janeiro, Brazil, write to the MANUFACTURERS RECORD as follows:

"Never before was there such opportunity to sell American goods in Brazil as now. We represent American manufacturers and visit the leading importers to whom we offer the products. We plan to increase our business and selling force in order to build a trade that will correspond to the importance of this country and to our personal effort. We are mainly interested in novelties and light articles for all trades. Also we have a department for special works, for a stipulated fee, as follows: Registration of trademarks and patents; display of samples in our building and report on business possibilities; distribution for manufacturers of free samples, circulars or catalogues; custom-house clearances; reports on duties, technical advice on custom duties, modifications in packing or manufacturing in order to save duties; purchasing samples of articles made in Europe, and sold here, that can be manufactured in the United States; quotations from local advertising companies and newspapers, nature of advertising, etc."

### France Needs Electric Motors.

Kater & Ankersmit, 30 Avenue de Villiers, Paris, France, write to the MANUFACTURERS RECORD as follows:

"As soon as the Germans have left France a tremendous business will be transacted. The first requirements will be electric motors, from  $\frac{1}{2}$  to 100 horsepower, to replace those carried away by the enemy from every mill using electricity, either made by their own engines or bought from electric-light stations; current, principally three-phase. We fear that French and English motor firms will not be in a position to cope with the demand, and we are confident that American motors will be easily sold. We should be willing to act as selling agents for firms willing to send a series of motors in various forces, so they could be delivered from stock without delay. We would be prepared to take the motors in our warehouse, pay rent and fire insurance and place a certain sum with bankers as guarantee. We have a technical office, exploiting our own and foreign patent rights; branch in London (34 Fenchurch street, E. C.). We shall be pleased, if required, to send one of our partners over to the States to settle the final agreements."

### Railway Equipment, Military Supplies, Etc.

G. T. Gsutsos, 37 Rue de Thermes, Athens, Greece, writes to the MANUFACTURERS RECORD as follows:

"I am desirous of entering into relation with American steel and iron works, because the Belgian factories and those of the north of France are no longer able to supply customers. Unfortunately American manufacturers want to impose absurd conditions with extreme rigor, instead of profiting by the situation, in order to introduce their goods here and make their products known. Having numerous and important relations with Greek merchants and in frequent communication with various ministers as representative of great iron works and wood and timber handlers which have furnished the State so far, I am in a position to render profitable

service to firms which would confide me their agency. Now business is heavy, and the Government has given out orders for materials and equipment for railroads, military equipment, war supplies and forges to people in the United States."

### Greece Wants American Machinery.

Dino J. Papayianopoulos & Co., representants de commerce, Patras, Greece, write to the MANUFACTURERS RECORD as follows:

"In our country various industries and manufactures have begun and there are numerous needs for all kinds of machinery. Your manufacturing people can readily send catalogues, with prices. Payment of all merchandise will be thoroughly secure on receipt of due notice and the usual documents or one-third payment in advance and the rest after the goods have been delivered. For our part, we will do everything necessary for those who confide their agency to us for goods such as these: Printing machines; woodworking machines; shoe machines; hatmakers' equipment and machinery; gas and petroleum motors; horizontal pipe; agricultural implements and machinery; automobiles and auto sprinklers, etc."

### American Products Wanted.

Clarke & Co., 24 Bond street, Sydney, N. S. W., Australia, write to the MANUFACTURERS RECORD as follows:

"A number of your subscribers have written to us and we referred their letters to Mr. De Witt, care Geo. Smith Morrison, Collins street, Melbourne. We understand he is interested in machinery and will probably take up matters direct with those firms that communicated with us. With regard to the outlook for selling American goods: We are hardly in a position to form a just conclusion, but seeing that there has been such a congestion of freight on the Pacific coast for Australian and New Zealand ports, it looks as if a great many classes of goods heretofore obtained in Europe are now being obtained from America. We do business mostly in special lines, to which we devote a special selling campaign. In standardized articles, manufactured indiscriminately in many parts of the world, lowest price is the greatest factor in doing business."

### Hides, Leather and Shoe Polish.

Bensussan, Sides & Co., Salonique, Greece, write to the MANUFACTURERS RECORD as follows:

"Engage some important American manufacturing concern to give us samples and prices on the following goods: Shoe blackening, 30 to 40-pound packages; rectangular pieces of leather for making belting, and state size of pieces; cowhides, good quality, 2 to 3 millimeters in thickness, weighing 3 to 4 kilos each, in good condition and without cuts; hide ought to be sent for examination for delivery c. i. f. at Salonique; payment will be secured of the Grand Bank, with a discount of 3 per cent."

### Acide Phonique, Aniline Colors, Etc.

Edmond Mangepan, 64 Rue de Vaugirard, Paris, France, writes to the MANUFACTURERS RECORD as follows:

"I am buyer of acide phonique cristallise 34-35 degrees ice, acide phonique 39-40 or 40-41 degrees snow; aniline; aniline colors, tinctures, especially blue-black; magnesium (preferred in powder) immediately, in large quantities, 5000 kilos each minimum. Lowest prices in francs at quay, French port. If offers are cabled, I would reply same way (for acide phonique and magnesium especially.)"

### Opportunities in Roumania.

Basile Dracopolu, 8 Strada Brasila, Galatz, Roumania, writes to the MANUFACTURERS RECORD as follows:

"We have abundant supply of wheat, grain, etc., but the equipments for manufacturing meal are not sufficient to meet the demands of Egypt, Turkey, Greece,

and so on. We need a factory for producing 50 to 100 wagonloads every day; at present our factory and mill are able to produce no more than 10 to 12 wagonloads or carloads. Roumania has no establishment for making materials for clothing for men and women, so at present materials for that purpose are being imported from Austria, Germany, France and England at the rate of \$40,000,000 to \$50,000,000 a year. Get people in your country to interest themselves, especially financiers and manufacturers who have the means and would be interested in finding an outlet for their goods in Roumania. Roumania purchases large quantities of American shoes and foot coverings."

### Wants Agencies for Australia.

Valdemar Petersen, Hotel White Hall, Bloomsburg Square, London, W. C., England, writes to the MANUFACTURERS RECORD as follows:

"I have spent five weeks in the United States collecting agencies of different kinds for the Australian market. If you know of anybody who wishes to be represented there I shall be glad to take up the matter with them. I have so far closed up with manufacturers in different lines, as I do not specialize, my business being more on the line of a commission house. I have \$5000 in the Bank of New South Wales, Sydney, and can increase my capital considerably if required. If you wish any information as to my business ability I refer you to R. G. Dun & Co."

### Textile Machinery, Supplies, Etc.

Hijos de Alfonso A. Lize, Bruch, 31, Barcelona, Spain, write to the MANUFACTURERS RECORD as follows:

"We are chiefly interested in textile machines and spare pieces for same, specially spinning and weaving machinery, which we are importing on a large scale. We are also concerned in machinery for manufacturing of brass and steel wire articles, such as screws, screw-rings, hooks, hinges, thread-guides in the shape of pig-tail, wood screws, etc.; all these made of iron wire; fishing or angling hooks of all shapes of steel wire; spinning and twisting travelers made of either flat or round brass and steel wire; spiral springs of all shapes and styles of steel wire, with or without buckles at the ends; hairpins and safety-pins of iron wire; ordinary pins of either brass or steel wire; sewing needles of steel wire, etc. At present we have an inquiry for machines for making the articles mentioned in the three first items, and should be glad if you could refer to any reliable makers. Should also like to be connected with manufacturers of flat, round and square brass, steel and iron wires, for making mentioned articles."

### Ice-Cream Freezers and Hammocks.

J. J. Blow, importer and manufacturer, 104 High Holborn, London, W. C., England, writes to the MANUFACTURERS RECORD as follows:

"I have an inquiry for the usual type of garden hammock, well gotten up and cheap; also an inquiry for ice-cream freezers, if cheap. Any manufacturers in either line, and not represented on this side, addressing me direct, with quotations and catalogues, I will be only too pleased to do everything possible in my power to further their interests."

### Wants Wool for Knitting.

Bunge Bros., Havre, France, write to the MANUFACTURERS RECORD as follows:

"Please send us names of dealers in manufactured wool for knitting by hand and machinery."

### For Water Meter Manufacturers.

L. Pons, 10 Rue de Maistre, Paris, France, writes to the MANUFACTURERS RECORD as follows:

"Send me the names of manufacturers of water meters used in the largest cities of America and such as are approved by New York."

# Construction Department

## IN ORDER TO FOLLOW UP

Properly the Construction Department items, please bear in mind the following statements:

### EXPLANATORY

The MANUFACTURERS RECORD seeks to verify the items reported in its Construction Department by full investigation. It is often impossible to do this before the item must be printed or else lose its value as news, and in some items it is found advisable to make statements as "reported" or "rumored," and not as positive information. If our readers will note these points they will see the necessity of the discrimination. We are always glad to have our attention called to errors that may occur.

### HOW TO ADDRESS

The name of one or more incorporators of a newly incorporated enterprise should always be written on letter addressed to the official headquarters or to the town of the parties sought, as may be shown in the item. Sometimes a communication merely addressed in the corporate or official name of a newly established company or enterprise cannot be delivered by the postmaster. By following these general directions the postoffice will generally be enabled to deliver your mail promptly, although it is inevitable that some failure by the postal authorities to deliver mail to new concerns will occur, as our reports are often published before new companies are known and before they have any established office for the receipt of mail.

### WRITE PERSONAL LETTERS

In communicating with individuals and firms reported in these columns a letter written specifically about the matter reported will receive better and quicker attention than a circular. In most instances a return postal card or addressed and stamped envelope should be enclosed with letter.

In correspondence relating to information published in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

### DAILY BULLETIN

The Daily Bulletin of the Manufacturers Record is published every business day in order to give the earliest possible news about new industrial, commercial, building, railroad and financial enterprises organized in the South and Southwest. It is invaluable to manufacturers, contractors, engineers and all others who want to get in touch at the earliest moment with new undertakings, or the enlargement of established enterprises. The subscription price is \$25 per year.

All advertising contracts in the Manufacturers Record for three months or longer include a subscription to the Daily Bulletin for the contract period, as well as a subscription to the Manufacturers Record.

### BRIDGES, CULVERTS, VIADUCTS

Fla., Anona.—Tampa & Gulf Coast R. R., C. H. Lutz, Gen. Mgr., Ybor City, Fla., will construct bridge across Clearwater Bay to Indian Beach, near Anona; 2000-ft. structure; wood on pine piling; 50-ft. draw, comprising a lift steel span for 50 ft. clear channel for navigation; bids asked on the draw; Engr., O. N. Axtel, Tampa. (See Machinery Wanted.)

Fla., Clearwater.—E. R. Jeffords and Geo. Smoyer of Clearwater, W. E. Parker of Tampa, Fla., and P. E. Ruhl of Plant City, Fla., will construct bridge from mainland at Clearwater to Island Park; length 2 mi.; estimated cost, \$100,000.

Ga., Irwinton.—Wilkinson County Commissioners, Irwinton, and Washington County Commrs., Sandersville, Ga., contemplate constructing steel bridge across Oconee River; estimated cost \$25,000; Virginia Bridge & Iron Co., Roanoke, is probable contractor.

Ga., Macon.—Bibb County Commrs. contemplate constructing concrete bridge on Columbus Rd. across Echeconne Creek at line of Bibb and Crawford counties.

Ky., Henderson.—Henderson County Fiscal Court let following contracts to construct 11 bridges: Champion Bridge Co. of Wilmington, O., 1 structure; International Bridge Co., 1 structure; H. H. Lilly of Smith Mills, Ky., 9 structures.

Md., Elkridge.—Maryland State Roads Com., C. E. Weller, Chrmn., 601 Garrett Bldg., Baltimore, will build reinforced concrete bridge (2 98-ft. arch spans) across Patuxent River along Baltimore and Washington Blvd.; Baltimore and Howard counties; contract No. 05Br.; bids until June 15. (See Machinery Wanted.)

Md., Frostburg.—City and Cumberland & Pennsylvania R. R. (J. T. Robertson, Gen. Mgr., Cumberland) will construct bridge over railroad cut on Bowery St.; City Engr. Harvey submitted to City Council report and specifications calling for concrete arched structure 44 ft. long with 38-ft. road and 6-ft. sidewalk; cost \$5000 to \$9000.

Mo., Kansas City.—Chicago, Burlington & Quincy R. R., W. L. Breckinridge, Engr. M. W., Chicago, Ill., will construct bridge across Missouri River to replace present Hannibal

bridge; let contract Union Bridge & Construction Co. of Kansas City to construct substructure; railroad's engineers will construct superstructure; length 1555 ft.; substructure to consist of 47-ft. octagonal pier, 4 rectangular piers each 27x72 ft., 2 abutments and several smaller piers; all piers to be sunk by pneumatic system to bedrock at average depth of 65 ft. below water level; superstructure to be all steel, built on 22 levels, lower for double railway track and upper for traffic way; draw span of 450 ft., 2 fixed truss spans of 330 ft. each, with girder spans on approaches; estimated cost \$1,000,000.

S. C., Columbia.—Seaboard Air Line Ry., W. D. Faucette, Ch. Engr., Norfolk, Va., let contract Carolina Construction Co., Union National Bank Bldg., Columbia, to construct bridge to cost about \$40,000.

Tex., Columbus.—Colorado County Commrs., Columbus, Tex., and Austin County Commrs., Bellville, Tex., will construct single span bridge, 130 ft. long, across San Bernard River, 1 mi. from Cat Spring; cost about \$3000.

Tex., Houston.—Texas & Pacific Ry., C. H. Chamberlin, Ch. Engr., Dallas, Tex., will construct steel bridge across Trinity River.

Va., Fort Monroe.—Government let contract R. V. Richardson of Hampton, Va., at \$2600 to construct postern bridge at Fort Monroe.

Va., Groseclose.—Smyth county will construct 37-ft. steel span 2 mi. from Groseclose; 12-ft. roadway; 12-ton loading; built according to standing plan "L-16" of Virginia State Highway Com.; County Commissioners, Marion, Va., receive bids until June 7; G. P. Coleman, State Highway Commissioner, Richmond, Va. (See Machinery Wanted.)

### CANNING AND PACKING PLANTS

Ala., Phenix City.—Alabama-Georgia Packing Co., capital stock \$60,000, organized with Jas. L. Glass, Prest.; J. S. Bland, V.-P.; J. M. Crawford, Secy.-Treas.; will establish packing plant, abattoir, cannery and 60-ton refrigerating plant; initial annual capacity 20,000 head of beefs and 50,000 head of hogs.

W. Va., Wheeling.—John Wenzel Co. will rebuild plant lately reported burned at loss of \$40,000.

### CLAYWORKING PLANTS

Ala., Mobile.—Brick and Tile.—Gulf Brick & Tile Co., capital \$50,000, inceptd.; J. K. Fox, Prest. and Gen. Mgr., Fowl River, Ala.; L. L. Duggar, V.-P., and Geo. J. Bates, Secy.-Treas., both of Mobile.

### COAL MINES AND COKE OVENS

Ky., Bowling Green.—J. E. Mercer Coal Co., capital \$2500, inceptd. by J. E. Mercer, J. F. Duncan and W. R. Gardner.

Okla., Alderson.—Acme Coal Co. inceptd. by H. H. Swartz, W. E. Swartz and J. P. Swartz.

Okla., Alderson.—Acme Coal Co., capital stock \$10,000, inceptd. by H. H. Swartz, W. E. Swartz and J. P. Swartz.

Tenn., Knoxville.—Golden Ash Coal Co. increased capital from \$40,000 to \$50,000.

W. Va., Beckley.—East Gulf Coal Co., capital \$100,000, organized with P. M. Snyder, Prest.; J. F. Bolen, V.-P.; S. M. Miller, Gen. Mgr.; J. Lewis Bumgardner, Secy.-Treas.; secured leases on 1500 acres coal land and will develop; also erect 40 dwellings.

W. Va., Raleigh.—Raleigh Coal & Coke Co. will construct steel flippie to replace wood structure at No. 3 mine; also erect 30 employees' dwellings.

W. Va., Slab Fork.—Slab Fork Coal Co. is reported as contemplating expending \$30,000 for electrical equipment; increasing capacity.

W. Va., War.—Williams-Pocahontas Coal Co., capital \$50,000, organized to develop coal land on War Creek; W. T. Williams, Prest. and Gen. Mgr., Bluefield, W. Va.; H. E. Harmon, V.-P., Tazewell, Va.; H. W. Johnson, War, Secy.-Treas.

### CONCRETE AND CEMENT PLANTS

Fla., Sarasota.—Building Blocks, etc.—Z. B. Hayslip and C. R. Scott will establish plant to manufacture concrete buildings, etc.; have ordered machinery.

S. C., Columbia.—Roofing.—Cementile Roofing Co., 615 Hampton St., inceptd.; capital stock \$5000; continues operation of plant previously noted (November, 1914) established to manufacture cementile roofing. (Lately mentioned under Clayworking Plants.)

### COTTON COMPRESSES AND GINS

Ga., Adel.—Adel Ginning Co. is reported to install additional gins to gin long-staple cotton.

Ga., Pavo.—W. W. Williams will build gin. Tex., Dodsonville.—Dodsonville Gin Co., capital \$2000, inceptd. by J. T. Jones, C. E. Hunt and T. J. Stewart.

Tex., Elysian Fields.—Elysian Fields Cotton Gin Co. will rebuild cotton ginnery previously burned; all-steel building with concrete floor; has ordered ginning machinery.

Tex., Texarkana.—M. R. Ray is reported to build gin.

### COTTONSEED-OIL MILLS

Ark., Little Rock.—Dixie Cotton Oil Co., capital \$100,000, inceptd.; H. S. Hayley, Prest.; J. B. Hildebrand, V.-P. and Gen. Mgr.; E. B. Webber, Secy.-Treas.

Ga., Adel.—Adel Ginning Co. is reported as contemplating establishment of cottonseed-oil mill.

Ga., Savannah.—Cottonseed Oil Co., Richard F. Hoyt, Prest., Boston, Mass., purchased 10 acres as site for plant to manufacture cottonseed-oil products; Gallivan Building Co. of Greenville, S. C., is general contractor; has let subcontracts for bricks, sand, etc.

### DRAINAGE SYSTEMS

N. C., Wilmington.—Commrs. New Hanover County Drainage Dist. No. 1, C. Van Leuven, Chrmn., let contract Southern Drainage & Construction Co. of Winston, N. C., to construct drainage system; 9 mi. canals, average depth 5 ft.; four 55-ft. metal culverts, etc.; drain 1600 acres for development and farming; contractor also purchased \$22,000 bond issue; Engr., J. L. Becton, Wilmington. (Call for bids lately noted.)

S. C., Holly Hill.—Commrs. (Dr. S. P. Wells and others) Rum Neck Drainage Dist. will construct canal about 5 mi. long, 3 to 10 ft. bottom width, 2 ft. 2 in. to 4 ft. deep; 14,740 cu. yds. excavation; lets contract June 22; previously noted under Orangeburg, S. C. (See Machinery Wanted.)

### ELECTRIC PLANTS

Ala., Birmingham.—Alabama Power Co. contemplates extending electric transmission system to Guntersville, Albertville and Bonz.

Ark., Eldorado.—Arkansas Light & Power Co., Arkadelphia, Ark., acquired Eldorado Light & Water Co.'s plant. (See Ark., Arkadelphia.)

Ark., Arkadelphia.—Arkansas Light & Power Co., acquired Eldorado Light & Water Co.'s plant at Eldorado, Ark.; is building transmission line from Magnolia to McNeil and Waldo; all material purchased; is improving light plant recently purchased at Newport and will build transmission line to Diez and Tuckerman; will want pole line, hardware, w. etc.; will extend water system at Eldorado, and needs 3000 ft. 4-in. and 6-in. grade B cast-iron pipe, few hydrants, etc. (See Machinery Wanted.)

Fla., St. Augustine.—Jacksonville & St. Augustine Public Service Corp. is reported to build power plant.

Ga., Toccoa.—City voted \$35,000 bonds to construct electric-light plant; Claude Bond, Mayor. (Lately noted.)

Ga., Toccoa.—City, Claude Bond, Mayor, voted lately-noted \$35,000 bonds to construct electric-light plant.

Ky., Harlan.—John A. Stewart Electric Co., Penobscot Bldg., Detroit, Mich., proposes building electric plant to distribute electricity throughout coal fields; not definitely decided upon; reports state \$250,000 will be invested.

Md., Cumberland.—City will expend \$32,000 to install electric-lighting system for distance of 1500 ft. along Baltimore St.; Oscar Eyerman, Street Commr., is in charge.

Mo., Charleston.—Public Utilities Co. has franchise to construct electrical transmission line from Charleston to East Prairie, 12 mi., to supply latter city with electricity.

Mo., Chilhowee.—City voted \$6000 bonds to construct electric-light plant. Address The Mayor.

Mo., Keytersville.—City plans granting franchise to Ray W. Cropper for installation electric-lighting system.

Mo., Montrose.—City let contract to Matthews Construction Co., Kansas City, at \$5500, exclusive of building, to construct lately-noted electric plant; E. T. Archer & Co., Const. Engrs., New England Life Bldg., Kansas City.

N. C., Warsaw.—City granted franchise for electric-light plant to Messrs. Oliver and Pettit of Clinton, N. C.

Okla., Kingston.—Geo. F. Blethen, lately noted as receiving franchise to install electric-light plant, will erect and operate plant containing 37½ K. V. A. alternator and 50 H. P. oil engine.

Tex., Gordon.—Gordon-Mingus Light Co., capital stock \$6000, inceptd. by C. S. White, W. S. Dawson and John W. Goble.

Tex., Palestine.—Texas Power & Light Co., E. B. Neiswanger, Constr. Engr., Dallas, Tex., is proceeding with construction of power station; steel by-rib plaster building, area about 55x80 ft.; combination plant including Diesel engine unit, steam turbine and reciprocating engine; capacity, 1200 K. W., with space allowed for additional 500 H. P. (Previously noted.)

Tex., Silsbee.—Silsbee Ice Mfg. Co. will install electric-light plant; has purchased machinery.

Tex., Strawn.—Strawn Coal Co., J. H. Levy, Gen. Mgr., will expend \$30,000 to install lately-noted electric-light plant; develop 100 H. P.; local service in Strawn; Diesel oil engine; construction by company force.

W. Va., Bluefield.—City is reported to build electric-light and water plant. Address The Mayor.

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.



## FLOUR, FEED AND MEAL MILLS

Ala., Georgiana.—McGowin.—Bennett Mercantile Co., W. M. McGowin, Prest., and J. R. Bennett, Secy., will establish lately-noted mill; daily capacity, 50 to 60 tons mixed feeds, dry and molasses; needs engine. (See Machinery Wanted.)

Ala., Marbury.—Marbury Flour & Mill Co. purchased machinery for previously-noted flour mill of 25 bbls. capacity; has building; Chas. Cooper (lately incorrectly noted as to establish a mill) was one of promoters of the Marbury Co.

Ga., Metter.—Candler County Milling Co., capital \$2500, inceptd. by W. D. Kennedy, Prest.; John M. Dekle, V.-P.; Geo. L. Williams, Secy.-Treas.; will build flour mill.

N. C., Charlotte.—Interstate Milling Co., lately noted inceptd., capital stock \$100,000, by Chas. P. Moody and others to build flour mill; asks prices on engines, boilers and electrical equipment. (See Machinery Wanted.)

N. C., Drexel.—Drexel Roller Mills Co., capital \$25,000, inceptd. by D. B. Mull, J. H. Rector and others of Drexel and S. Huffman of Morganton, N. C.

S. C., Harvin.—F. P. Ervin, Propr. Clarendon Roller Flour Mills, Manning, S. C., will not erect mill at Harvin. (Recent report incorrect.)

Tex., Glazier.—Glazier Mill & Elevator Co., capital stock \$15,000, inceptd. by J. F. Johnson, A. V. McQuiddy and O. L. Girdner.

W. Va., Keyser.—Woolf Milling Co. let contract C. W. Shelley to erect addition to mill; 2 stories; 95x75 ft.; brick. Mr. Shelley also prepared plans. (Lately noted.)

## FOUNDRY AND MACHINE PLANTS

Ala., North Birmingham.—Stoves.—Birmingham Stove & Range Co. will rebuild plant lately noted burned; estimated cost \$50,000.

Ky., Louisville.—Repair Shop.—Louisville Repair Co., capital \$1200, inceptd. by R. J. Hall, M. J. Hall and William McGaff.

Mo., St. Louis.—Boilers, etc.—Philip A. Rohan Boat, Boiler & Tank Co., capital stock \$25,000, inceptd. by Philip A. Rohan, S. H. Rohan and W. F. Fahey.

Okla., Randlett.—Threshing Machines.—Cedric Threshing Machine Co., capital stock \$2400, inceptd. by J. W. Parker, S. J. Fender, J. Elmore and A. Roth.

Tenn., Jackson.—Foundry.—Jackson Iron and Bronze Works, I. A. Rainey, Gen. Mgr., will conduct general foundry and repair work in connection with manufacture of ornamental metal work. (See Metal-working Plants.)

Va., Culpeper.—Machinery.—Culpeper Machine Co., capital stock \$10,000, inceptd. by J. M. Millman, Prest.; Wm. P. Downing, Secy.

Va., Richmond.—Machinery.—Virginia Machinery & Well Co., capital stock \$50,000, inceptd. by C. F. Cole, Prest.-Treas.; C. R. Elam, V.-P.; Quincy Cole, Secy.

## GAS AND OIL ENTERPRISES

Ala., Gadsden.—Distribution Plant.—Texas Co. (main office, Houston, Tex.) is reported to build plant to include tanks, office, stables, etc.

Ky., Frankfort.—City granted franchise to Hazelriggs & Hazelriggs, representing Frankfort Natural Gas Co.

La., Shreveport.—Cotton Queen Oil Co., capital stock \$400,000, inceptd. by S. F. Wiles, Prest.; M. A. Wiles, V.-P.; H. R. Ratcliff, Secy.-Treas.

Md., Cumberland.—Oil-distributing Plant.—Standard Oil Co. (main office, 26 Broadway, New York) is reported as contemplating expending \$25,000 for improvements to plant in the Narrows, to include erection of concrete and brick buildings, additional oil-storage tanks and safety gasoline reservoirs; also enlargement and remodeling of present plant.

Okla., Bristow.—Oil Refinery.—Bristow Oil & Refining Co., capital stock \$12,500, inceptd. by J. B. Humphrey, B. H. Greenwood and J. M. Longfellow.

Okla., Cushing.—Home Gas Co., capital stock \$50,000, inceptd. by L. D. Gaunt, John R. Hadley, A. W. Little and John Foster.

Okla., Cushing.—Home Gas Co., capital stock \$50,000, inceptd. by L. D. Gaunt, J. R. Hadley, A. W. Little and John Foster.

Okla., Muskogee.—Oil Refinery and Pipe Line.—Muskogee Oil Refining Co. appropriated \$100,000 to improve plant and build pipe line; will provide additional storage facilities and build filtration plant increasing

daily capacity from 800 to 1350 bbls.; pipe line will extend from Muskogee to Eram through Boynton fields, 40 mi.

Okla., Pemeta, P. O. Jennings.—Oil Refinery. Geo. Ames, formerly of Drumright; Chas. F. Colcord of Oklahoma City; E. A. Hawley of Cushing, Okla.; Maney Bros. and L. F. Parker of St. Louis will build refinery with daily capacity 1000 bbls. oil.

Okla., Okmulgee.—Seer Oil & Gas Co., capital stock \$4800, inceptd. by A. W. Cline, B. B. Smith and W. O. Rees.

Okla., Sulphur.—Middle Tennessee Gas & Oil Co., capital \$25,000, inceptd. by J. H. Tolley, Mulberry, Tenn.; Jas. Reed, Hardlow, Tenn.; J. H. Young and J. C. Connor, Sulphur.

Okla., Sulphur.—Middle Tennessee Gas & Oil Co., capital stock \$25,000, inceptd. by Jas. M. Young and J. O. Conner of Sulphur, Jas. R. Tolley of Mulberry, Tenn., and others.

Okla., Tulsa.—Echo Oil Co., capital stock \$20,000, inceptd. by Donald P. Oak, Burt H. Collins, Edson C. Oak and Ray M. Collins.

Tex., Aquilla.—Scott Nor Oil Co., capital stock \$25,000, inceptd. by R. J. Wilson, N. G. Olsen and T. B. Wilson.

Tex., Beeville.—Mineral Valley Oil Co., capital \$15,000, inceptd. by Chas. Bast, W. A. Booth, M. W. Bates and others.

Tex., Beaumont.—Fannett Oil Co., capital stock \$6000, inceptd. by L. F. Gilbert, T. V. Smelker and G. T. Butler.

Tex., Brenham.—Stamman Mound Oil & Gas Co., capital stock \$15,000, inceptd. by J. A. Lockett, I. M. Lockett and H. W. Hughes.

Tex., San Antonio.—First Skidmore Oil Co., capital stock \$20,000, inceptd. by A. M. Walker, L. E. Walker and W. E. Prall.

Tex., San Antonio.—Tri-Points Oil Co., capital stock \$5000, inceptd. by B. L. Raborn, I. L. Dingman and E. F. Hunter.

Tex., Somerville.—Somerville Oil Co., capital stock \$12,000, inceptd. by W. D. Barrett, A. C. Calhoun and J. D. Giddings.

Tex., Thrall.—Oil Refinery.—S. S. Osborn of Chanute, Kans., plans to establish oil refinery.

## ICE AND COLD-STORAGE PLANTS

Fla., Tampa.—Armour & Co. (main office, Chicago, Ill.) let contract Evans Bros. Construction Co., Birmingham, Ala., to build addition to cold-storage plant; cost \$15,000 to \$20,000.

Md., Baltimore.—Terminal Freezing & Heating Co., 408-30 S. Eutaw St., will erect cold-storage warehouse; 8 stories; 140x112 ft.; add to present building 3 stories, 35x120 ft.; cost \$150,000 to \$200,000. (Lately noted as proposing \$125,000 bonds to enlarge plant.)

Md., Denton.—Denton Ice & Fuel Co. (Green & Merrick) will rebuild ice plant lately noted burned; open bids in 60 days on 40x60-ft. mill-construction building; install machinery for 10 tons daily capacity. (See Machinery Wanted.)

Miss., Kosciusko.—Planters' Oil Mill & Gin Co. contemplates installation of 25-ton ice plant. (See Machinery Wanted.)

Tex., El Paso.—H. T. Ponsford will erect brick cold-storage building to cost \$12,500.

Va., Charlottesville.—Rothwell & Co., Martinsburg, W. Va., will build cold-storage plant; storage capacity 60,000 to 65,000 bbls.; cost \$75,000.

## IRRIGATION SYSTEMS

Tex., Donna.—Donna Irrigation Dist. No. 1, Hidalgo county, D. H. Barr, Secy.-Mgr., will vote June 3 on \$750,000 bonds; contemplates extension of canal system from present reach of 15,000 acres to a reach of 40,000 acres and installation of necessary pumps, engines, etc.; probably expend \$175,000 on improvements within next year; G. S. Clark, Engr. (Previously noted.)

Tex., Harlingen.—Cameron County Irrigation Dist. No. 1 will construct 2 metal flumes over Arroyo Colorado; bids until June 19. (See Machinery Wanted.)

## IRON AND STEEL PLANTS

Va., Buena Vista.—Iron Furnace.—Alleghany Ore & Iron Co. (office Coatesville, Pa.) has blown in Buena Vista iron furnace; expended \$35,000 for improvements, including relining, installation of Hunt blast furnace filling system costing \$30,000, etc.; daily capacity about 150 tons pig-iron.

## LAND DEVELOPMENTS

Ala., Dyas.—Satsuma Orange Orchard Co., capital \$40,000, inceptd. by J. P. Lawrence

and A. B. Clymer of Dyas, W. D. Stapleton and W. M. Stuart of Bay Minette, Ala., and others; will plant 10,000 satsuma orange trees on 100 acres.

Ala., Mobile.—Highland Place Co. organized with D. H. Stewart, Prest., Fairhope, Ala.; E. C. Slosson, V.-P.; G. E. Perkins, Secy.-Treas.; will develop Magnolia Beach as summer and winter resort.

Fla., Vero.—Conkling-Vero Nurseries Co. (lately noted inceptd., capital stock \$25,000) will develop 40 acres in nurseries.

Ky., Harlan.—Coombs Land Co. (lately noted inceptd., capital \$20,000) organized; P. A. Paddock, 196 Montague St., Brooklyn, N. Y., Prest.; will develop about 150 acres, mainly on Ivy Hill, in city lots and plats; streets and roads already constructed.

La., Isabel.—Bogue Chitto Stock Farm Co., W. H. Sullivan, Prest., Bogalusa, La. (lately noted organized), will develop 2600 acres in Washington parish; clear lands, erect farm buildings, raise crops, etc., for stock farm; improvements to cost about \$60,000 first year; capital stock \$50,000, with privilege of increasing to \$100,000.

Md., Baltimore.—Frank A. Furst Realty Co., 1515 Fidelity Bldg., will develop 231 acres river-front land on Patuxent River for factory sites; reclaim in connection with developments of Arundel Sand & Gravel Co.; plans include dredging, filling in, etc.

Md., Cumberland.—Dingle Park Land Co., 48 Third National Bank Bldg. (lately noted organized), Robt. E. King, Prest., will develop 51½ acres for suburban lots; J. C. Shriver and Henry Schaidt, Engrs.; intends to install gravity water system.

N. C., Newbern.—Eastern Carolina Development Co., capital stock \$125,000, inceptd. by Chas. L. Abernethy of Newbern, L. F. McCady and Mattie S. McCady of Oriental, N. C.

Tex., Janes Station (not a P. O.).—Piassa Tractor Co. has arranged for 3000 acres to be developed as town site. Address M. S. Palmer, Littlefield, Tex. (See Miscellaneous Factories.)

Va., Radford.—Radford-Willis Development Corp., capital \$100,000, inceptd. by E. F. Strong, Prest.; C. R. Williams, V.-P.; E. D. Miller, Secy.-Treas.

## LUMBER MANUFACTURING

Ga., Waycross.—Pine & Cypress Co., capital stock \$6000, inceptd. by M. M. Bailey of Waycross, R. P. Taylor of Jacksonville, Fla., and others.

Ky., Louisville.—C. C. Mengel & Bro. Co. increased common stock from \$1,350,000 to \$2,000,000 and preferred stock from \$350,000 to \$1,500,000.

La., Shreveport.—Oil States Lumber Co., capital stock \$30,000, inceptd. by L. Elfant, Prest.; H. R. Ratcliff, V.-P.; J. E. Kennedy, Secy.; M. J. Dooley, Treas.

N. C., Wilmington.—W. J. Norris, Box 103, will install lately-noted sawmill; erect 32x106-ft. mill building costing \$1000, 20x104-ft. dry-kiln, lumber sheds, etc.; owner personally superintend building; now receiving bids on edger, trimmer, roofing, boiler and engine; daily capacity of mill, 15,000 ft. North Carolina pine and long-leaf pine. (See Machinery Wanted.)

S. C., Sumter.—Alcott Lumber Co., capital stock \$5000, inceptd. by G. G. Tweed, S. F. Tweed and J. W. Jackson.

Va., Brockroad.—R. H. Wakeman is installing sawmill of 8000 to 12,000 ft. daily capacity; operate in connection with flour mill; machinery supplied and will be placed by owner.

## METAL-WORKING PLANTS

Ky., Lexington.—Metallic Packing.—Twentieth Century Metallic Packing Co., capital \$25,000, inceptd. by T. G. Saxon, E. I. Welch and R. C. Welch.

Mo., St. Louis.—Boiler Plates.—Birge-Brown Mfg. Co., 8th and Mound Sts., incorporated, capital stock \$10,000; Arthur B. Birge, Prest.; E. N. Birge, V.-P.; Walter Brown, Secy., Treas. and Mgr.; has installed machinery in rented building; manufacture Quicset hand-hole cover plates for boilers.

Tenn., Jackson.—Ornamental Metal Work, etc.—Jackson Iron and Bronze Works, I. A. Rainey, Gen. Mgr., will increase capital stock to \$50,000; manufactures steel, iron and bronze, ornamental work, including grilles, wickets, elevator cages, balcony railings, stairs, fire escapes, etc.; will also handle mill supplies and conduct general foundry and repair work.

## MINING

Ark., Kingdon Springs.—Zinc.—Layton-Childs Mining Co., Yellville, Ark., will develop 200 acres; W. A. Childs, Prest. and Mgr.; C. S. Childs, V.-P.; L. H. Layton, Secy.-Treas.; asks prices on engines and ore sacks; W. A. Childs previously noted as leasing Beatty mines and to build mill. (See Machinery Wanted.)

Fla., Live Oak.—Phosphate.—Great Bend Phosphate Co., capital stock \$25,000, inceptd. by W. L. Tedder, Prest.; B. W. Helvenston, Secy.-Treas.

Mo., Carthage.—Consolidated Marble & Stone Co. will rebuild mill reported burned at estimated loss of \$8000.

Mo., Joplin.—Lead and Zinc.—Gotham Mining & Milling Co., capital stock \$100,000, inceptd. by W. R. Davis, L. W. Davis, G. F. Davis and others.

Mo., Webb City.—Lead and Zinc.—Cunard Mining Co., capital stock \$50,000, inceptd. by Geo. Sans, W. E. Smith, T. H. Walker and J. D. McCain.

Okla., Miami.—McConnell Zinc Mining Co. (lately noted inceptd., capital stock \$25,000) organized; O. J. McConnell, Prest. and Mgr.; T. F. Lennan, V.-P. and Treas.; O. M. Confer, Secy.; develop 600 acres; daily capacity 10 tons.

Tenn., Greeneville.—Iron, etc.—Leroy Park will mine iron ore (5000 tons monthly), also manganese and zinc; convey to railroad 6 mi. distant; wants aerial tramway or other equipment for conveying the ore. (See Machinery Wanted.)

## MISCELLANEOUS CONSTRUCTION

Fla., Kissimmee.—Bulkhead, etc.—City contemplates construction of bulkhead and fill along lake front. Address The Mayor.

La., New Orleans.—Embankment.—City will construct earthen embankment about 10 ft. high, crown 30 ft. wide and base 60 ft. wide, across marshes of Southern Louisiana, to create foundation above Gulf of Mexico storm level, in connection with construction of transcontinental road leading east from city; embankment, dipper or similar type dredge work, needing 2 dredges; about 600,000 cu. yds. earth; work to be completed within 1 year from date of commencement; bids will be asked within 30 days; W. I. Hardee, City Engr.

Md., Indian Head.—Boiler Plant.—Bureau of Yards and Docks, Navy Dept., Washington, D. C., will build addition to boiler plant and install new equipment; bids until July 3.

Miss., Pascagoula.—Seawall.—Seawall Commission No. 1, J. R. Watts, Secy., will expend \$25,000 on lately-noted construction; 5000 lin. ft. reinforced concrete retaining wall; Engr., David U. Harris, Room 4 Bank of Mobile Bldg. (P. O. Box 476), Mobile, Ala.

Tenn., Memphis.—Levee.—Government let contract as follows for 3,886,000 cu. yds. levee work: Oglesby Construction Co., Memphis, to construct 1,930,000 cu. yds. levee work in Upper St. Francis Levee Dist.; S. M. Bush of Memphis for 893,300 cu. yds. levee and banquet work in Lower St. Francis; Rodgers Bros. for 623,000 cu. yds. in White River Dist., and Yale & Reagan of Chicago, 440,300 cu. yds. in Lower St. Francis Dist.; estimated cost \$1,000,000; E. M. Markham, Maj. Engrs. (Call for bids lately noted.)

Tex., Beaumont.—Docks, etc.—City voted \$100,000 bonds to begin initial construction on docks, warehouses, sheds, etc.; C. L. Scherer, City Engr. (Lately noted.)

Tex., Dallas.—Lake.—Southern Methodist University is having plans prepared for 5 or 6-acre lake on Turtle Creek; will construct dam to form lake and build bridge across lake.

W. Va., Shepherdstown.—Monument.—Rumseyan Society let contract Forbes Granite Co. of Chambersburg, Pa., to erect memorial to Jas. Rumsey; Ionic column of Mt. Airy white granite; surrounded by polished granite globe on which continents will be shown in relief; 75 ft. high, including base; cost \$15,300, including preparation of site.

## MISCELLANEOUS ENTERPRISES

Ala., Birmingham.—Dry Cleaning.—Magie City Dry Cleaning Co., capital stock \$5000, inceptd. by J. G. Towles, Prest.; O. A. Miller, Secy.-Treas.

Ark., McGehee.—Fire Alarms.—City purchased and will install 2 electric fire alarms of siren type. Address The Mayor.

Ark., Stuttgart.—Hardware.—Conn-Underwood Hardware Co., capital \$25,000, inceptd. by Robt. Conn, B. J. Underwood and B. B. Gibson.

Fla., Jacksonville—Engineering, etc.—Florida Engineering & Construction Co., capital \$25,000, incptd.; J. C. Haisma, Pres.; J. T. Blackford, V.-P.; H. S. Walker, Secy.-Treas.; offices, 403 Main St.

Fla., Kissimmee—Cattle Ranch.—Kissimmee Cattle Co., capital stock \$300,000, incptd.; E. L. Lesley, Pres.; C. W. Bass, V.-P.; Araminta E. Bass, Secy.; Jennie K. Lesley, Treas.

Ga., Savannah—Steamship Line.—Churchill Line, capital stock \$100,000, incptd. by A. F. Churchill and W. H. Way.

Ky., Lexington—Printing.—Lexington Leader Co., John I. Stoll, Pres., will erect newspaper building; 3 stories and basement; steel and concrete; fireproof elevators; site has frontage of 23 and 112 ft. and width in rear of 49 ft.; cost about \$40,000.

Ky., Maysville—Laundry.—Ernie Roden and W. T. Martin will erect laundry; 3 stories; brick; stone trimmings; foundations of limestone laid in cement; let contract.

Ky., Paintsville—Publishing.—The Post Publishing Co., capital \$1000, incptd. by A. E. Aukler, Bird Webb, Milt Morris, H. B. Richmond and Everett Hitchcock.

Mo., Keokuk—Grain Elevator.—Keokuk Milling Co. will erect concrete building for grain elevator; capacity, 6000 bu.

Mo., Kansas City—Grain Elevator.—Kansas City Elevator Co. will erect building for elevator at 25th and Madison Sts. to cost \$5000.

Mo., Joplin—Cleaning and Pressing.—Standard Cleaners, 1325 Main St., will build fireproof cleaning and pressing plant.

Mo., St. Louis—Plumbing.—W. F. Lambe Plumbing Co., capital stock \$5000, incptd. by Wm. F. Nancy and Jas. Lambe.

N. C., St. Phillips (not a P. O.)—Fisheries, etc.—Carolina Fish & Oil Co., capital \$125,000, incptd. by J. F. Brussels of Wilmington, John P. DeVeaux, W. A. King and others of Charleston, S. C.; to operate fisheries, manufacture fish oil, etc.

N. C., Wilmington—Laundry.—City Laundry Co. will install machinery; equipment ordered.

Okla., Chattanooga—Grain Elevator.—Black Grain Co., Hollister, Okla., will build lately-noted elevator for wheat and oats; capacity 25,000 bu.; erect 24x26-ft. frame mill-construction building; open building proposals July 1; J. H. Collins of Frederick, contractor; machinery purchased.

Okla., Tulsa—Printing.—Barrett-Miller Printing Co., capital stock \$3000, incptd. by E. F. Miller (410 W. 12th St.), W. K. Barrett, Mrs. Flora S. Miller and Mrs. W. K. Barrett.

Tex., Beaumont—Incinerator.—City voted \$5000 bonds to build incinerator. C. L. Scherer, City Engr. (Lately noted.)

Tex., Glazier—Grain Elevator.—Glazier Mill & Elevator Co., capital \$15,000, incptd. by J. F. Johnson, A. V. McQuiddy and C. L. Girdner.

Tex., Houston—Fire-alarm System.—Ammons' Automatic Fire-Alarm System, Union National Bank Bldg., J. B. Ammons, Gen. Mgr. (lately noted incptd., \$100,000 capital), is asking prices on machinery such as used in brass factories, and other materials. (See Machinery Wanted.)

W. Va., Keyser—Heating and Plumbing.—Arbogast & Ryan Heating & Plumbing Co., capital \$5000, incptd. by C. O. Arbogast, E. L. Ryan, Susan C. Arbogast and C. C. Arbogast.

### MISCELLANEOUS FACTORIES

Ala., Mobile—Shipyards.—Gulf City Shipbuilding & Drydock Co., capitalization \$4,500,000, planned for organization by Edward W. Hyde, Bath, Me., former Pres. Bath Iron Works, and other capitalists; plans contemplate drydock with capacity 3300 ft., marine railway with capacity 500 ft., yard capacity 600 ft., etc.; plant to occupy 50 acres land and employ 4000 to 5000 men when in operation; reported that capitalists interested in Birmingham (Ala.) steel corporations will be among organizers.

Ark., Fort Smith—Chemicals.—R. C. Staples Chemical Co., capital \$50,000, incptd. by R. C. Staples, D. C. Goff, J. S. Harper and Geo. F. Youmans.

Fla., Tampa—Shipyards.—British-American Co., represented by Theodore A. Frey, Pres. of Benjamin J. Glaser Realty & Engineering Co., Chicago, Ill., is reported as planning investment of \$5,000,000 to build and equip shipyard on Gulf coast; Mr. Frey investigated Tampa during week and is said to have submitted proposition asking site and bonus.

Ga., Tifton—Brooms.—G. L. Blalock and B. H. Bates contemplate establishing broom factory.

Ky., Ashland—Bottling.—Sher-a-Coco Bottling Co., capital \$10,000, incptd. by William Meade, Dr. G. W. Moore, H. H. Day and others.

Ky., Covington—Art Signs.—Donaldson Art Sign Co., capital \$150,000, incptd. by William M. Donaldson, William H. Donaldson, Archibald M. Donaldson and others.

Ky., Fort Thomas—Films.—Highland Film Corp., Jas. T. Ford, Pres., 402 Strand Theater Bldg., Cincinnati, O., will erect 7 two and three-story reinforced concrete buildings to cover 100 acres; estimated cost \$750,000; Zettie & Rapp, Architects, 907 Johnston Bldg., Cincinnati, O.

Mo., Baltimore—Shipyards.—Baltimore Drydocks & Shipbuilding Co., capitalization \$1,100,000, organized; Thos. H. Bowles, Pres.; Holden A. Evans, V.-P. and Gen. Mgr.; J. M. Willis, Asst. Gen. Mgr.; Edwin W. Poe, Secy.; Wm. C. Seddon, Treas.; succeeds Skinner Shipbuilding & Drydock Co., with complete plant for building ships, marine repair work, etc.; new organization plans having additional capital for additional facilities, but details have not been determined. (Baltimore Drydocks & Shipbuilding Co. lately noted incptd., etc.)

Mo., Colgate—Yeast.—National Yeast Co., capital \$200,000, incptd.; Samuel Frandsorf, Pres.; Daniel F. Brown, V.-P. and Treas., both of Frandsorf & Brown; intends building plant at Colgate; 4 brick buildings to cost \$60,000 to \$75,000.

Miss., Aberdeen—Ink.—Universal Mfg. Co., J. B. Young, Pres., is reported as contemplating enlargement of plant.

Mo., Kansas City—Mitchell Mfg. Co., capital \$50,000, incptd. by A. R. Mitchell, P. G. Scraggs, E. T. Parker and others.

Mo., Kansas City—Ladders.—American Ladder Co. of Moline, Ill., leased 10,000 sq. ft. space on Traders' Bldg., 19th and Campbell Sts., and will build assembling plant.

Mo., St. Louis—Washing Machines.—Steinmeyer Washing Machine Co., capital stock \$6000, incptd. by August Steinmeyer, Edward C. Bergt and Oscar Harsch.

Mo., St. Louis—Roofing.—Royal Roofing Co., capital stock \$5000, incptd. by Mattie and Benj. M. Schuelein and Jas. J. Connors.

Mo., St. Louis—Jewelry.—Erber-Crompton Mfg. Co., capital stock \$3000, incptd. by Chas. S. Erber, Louis M. Fleischmann and J. Herbert Crompton.

N. C., Montford—Cleaner.—Champion Chemical Co., capital \$50,000, incptd. by Wm. E. Redwood, Archibald Nichols, J. W. Nichols and others; purchased and will install machinery to manufacture Klenzit, a cleaning preparation.

N. C., Wilmington—Inspirator.—Auto Inspirator Co. incptd.; capital \$25,000; J. O. Brock, Pres.-Mgr.; W. B. Simmons, Secy.-Treas.; will manufacture (patented) device for increasing power and reducing gas consumption; especially adapted to automobile and motor-boat engines; tools and machinery mainly purchased.

S. C., Columbia—Beverage.—O-Lime-O Corp., capital \$10,000, chartered by F. J. Parham and T. H. Moffatt.

S. C., Kingstree—Bottling.—Kingstree Chero-Cola Bottling Co., capital stock \$10,000, incptd. by J. E. King, C. F. King and L. J. Mackey.

S. C., Williamston—Peanuts.—Leslie Fowden, Herbert Cowin and Dr. J. H. Saunders will build peanut factory; 70x50 ft.; 4 stories.

Tenn., Memphis—Independent Gum Co., capital \$15,000, incptd. by B. H. Williamson, G. G. Williamson, H. E. Winterton and others.

Tenn., Memphis—Vinegar.—Dawson Bros. Mfg. Co. will rebuild vinegar plant (at Marble and Nichols Sts.) reported burned at loss of \$10,000.

Tenn., Vestal, R. F. D. from Knoxville—Marble.—Andres Stone & Marble Co., Keefe Ave. and Richards St., Milwaukee, Wis., will build marble-finishing mill; 1 mill span 204x69 1/2 ft., 36 1/2 ft. high; lean-to machine-room 272x50 ft., 20 ft. high; mill span provides for 30-ton traveling crane runway, 65-ft. span, 68 ft. into open; riveted steel-framed structure throughout, anchored to concrete foundations, siding of No. 22 corrugated galvanized Armo; upper windows of wood; lower sash of steel; roof of wood covered with felt-gravel roofing and galvanized-iron ventilators; has let steel contract; taking estimates (at Milwaukee) on concrete footings, foundations, metal sash, etc.; closing contracts to insure completion within 90 days. (Fred Andres, Milwaukee, previously reported to build marble mill, etc.)

Tex., Gonzales—Gin Saw Cleaner.—Flowery-Lynch Gin Saw Cleaner Co., capital \$75,000, organized; will build plant to manufacture patented gin saw cleaner; E. Ray Bright is Secy. and Mgr.

Tex., Jones Station (not a P. O.)—Tractors.—Plaza Tractor Co. will locate factory 2 mi. from Jones Station; has arranged for 3000 acres land, which will be developed for townsite. Address M. S. Palmer, Littlefield, Tex. (See Land Developments.)

Va., Dayton—Harness.—Specialty Harness Co., capital \$50,000, incptd.; Fred Boggs, Pres.; N. R. Crist, Secy.-Treas.

Va., Richmond—Tobacco.—Falk Tobacco Co. let contract to W. S. Quarles, Richmond, to erect lately-noted addition to plant; cost without equipment \$6500; ordinary construction; 4 stories; 52x46 ft. 6 in.; pine floors; plans by Carneal & Johnson, Richmond.

Va., Roanoke—Candy.—W. G. Baldwin & Co., 310 S. Jefferson St. (lately noted incptd., capital \$300,000), will establish factories at Newark, N. J.; Columbus, O., and Dallas, Tex.; also establish a number of retail stores in Ohio, New Jersey and various Eastern cities; open machinery bids June 15; candy manufacturing capacity 6000 to 10,000 lbs. daily; W. G. Baldwin, Pres.; W. R. Staples, V.-P.; Jas. C. Cassell, Secy.-Treas.; Edw. R. Johnson, Mgr. (See Machinery Wanted.)

### MOTORS AND GARAGES

D. C., Washington—Garage.—J. H. Brady let contract to D. E. Nichol, 4324 Georgia Ave., to erect garage and stable on Woody Rd. near 35th St. N. W.; 66x78.9 ft.; brick; tile roof; hot-water heat; electric light; cost \$11,600; Waddy B. Wood, Archt., 816 Connecticut Ave. N. W., Washington. (Noted in April.)

Ky., Louisville—Garage.—Electric Garage Co. will erect brick garage to cost \$2600.

Ky., Louisville—Automobile Supplies.—Highland Auto Supply Co., capital stock \$10,000, incptd. by Edgar G. and Herman J. Schoen and Jas. S. Escott.

Ky., Louisville—Motorcycles.—Dayton Motorcycle Sales Co., capital stock \$5000, incptd. by Cleveland Y. Ray, Susie V. Ray and Ernest L. Schneider.

Mo., Baltimore—Garage.—Dr. Theodore Cooke, 914 N. Charles St., has plans by J. C. Spedden, 1640 S. Hanover St., Baltimore, for garage at Maryland Ave. and 27th St.; 150 ft. square; brick; slag roof; concrete floor; heating undecided; electric light; cost about \$20,000; construction by owner.

Mo., Baltimore—Garage.—Lemuel T. Appold let contract to Gladfelter & Chambers, 729 Roland Ave., Baltimore, to erect garage at rear 3503 N. Charles St.; 28x23 ft.; brick; slate roof; concrete floor; steam heat; electric light; cost about \$3000; Elliott & Emmart, Architects, 1102 Union Trust Bldg., Baltimore.

Mo., St. Louis—Automobiles.—Stearns-Knight Auto Co., capital stock \$10,000, incorporated by D. D. Brownback, T. A. Conrad, I. F. Brownback and E. H. Conrad.

N. C., Charlotte—Automobile Line.—Jitney Transit Co., capital stock \$5000, incptd. by E. R. Robbins, Louise Robbins and H. L. Taylor.

N. C., High Point—Automobile Line.—Interurban Motor Lines, capital \$125,000, incorporated by O. A. Kirkman, L. B. Kirkman and G. F. Wilson.

N. C., Wilmington—Auto Inspirator Co. (lately noted incptd., capital \$25,000) will manufacture device for use on engines. (See Miscellaneous Factories.)

Tenn., Knoxville—Automobiles, etc.—Cherokee Motor Co. incptd. by J. A. Durham, C. S. Reeder, P. M. Darby and others.

Tenn., Nashville—Garages.—Bransford Realty Co. and Geo. W. Killebrew will build 3 garages; reinforced concrete construction; cost \$20,000; white enamel brick and terra-cotta fronts; steam-heating equipment; Marr & Holman, Architects, Nashville.

Tex., Dalhart—R. S. Coon will construct 100x140-ft. garage to cost \$10,000; ordinary construction; tar and gravel roofing; cement floor.

Va., Staunton—Automobile Line.—Staunton & Monterey Auto Transportation Co., capital \$5000, incptd.; J. W. Spitzer, Pres.; Louis C. Davison, Secy.-Treas.

### RAILWAY SHOPS, TERMINALS, ROUNDHOUSES, ETC.

Tenn., Nonconah, P. O. at Memphis—Illinois Central R. R., A. S. Baldwin, Ch. Engr., Chicago, does not at this time contemplate erection of lately-noted car sheds.

### ROAD AND STREET WORK

Ala., Tuscaloosa.—Board of Public Works and W. S. Keller, State Highway Engr., Montgomery, let contract Tuscaloosa Concrete & Supply Co. to construct portions of Byler and Huntsville Rd.; 12 or 15 mi.; gravel with turpentine or bituminous binder; \$17,000 available. (Call for bids lately noted.)

Ark., Pochontas.—Randolph County Commissioners are having surveys made by O. D. Yenglin and Nick Peay of Little Rock, Ark., of road from Ravenden Springs to Ravenden, 8 mi.; survey under supervision of State Highway Com.; J. S. Decker, Pres. Road Comms. (Lately noted.)

Ark., Sheridan.—Grant County Road Improvement Dist. No. 1, J. L. West, Chmn., let contract Cole Construction Co. of Little Rock at \$103,541.43 to construct 28 mi. gravel road; gravel estimated to cost \$44,000 additional; issued \$100,000 bonds; Engr., Wm. J. Parks, Citizens Bank Bldg., Pine Bluff, Ark. (Lately noted.)

Fla., Arcadia.—City contemplates voting on bonds to improve streets; will resurface W. Oak St. and improve other streets. Address The Mayor.

Fla., De Land.—Volusia county (lately noted to vote June 8 on \$400,000 to construct hard-surfaced roads and concrete bridges) is asking bids until June 30 on materials and construction of 17.47 mi. roads in First Commissioners' Dist. and 35.36 mi. in Second Commissioners' Dist., in order to determine kinds of paving, cost, etc.; M. M. Bond, Chmn. County Comms.; J. B. McCrary Co., Engr., 1908 Third National Bank Bldg., Atlanta, Ga., and 507 Atlantic National Bank Bldg., Jacksonville, Fla. (See Machinery Wanted.)

Fla., Green Cove Springs.—Clay county defaulted bonds (\$450,000) for road construction. (Lately noted.)

Fla., St. Cloud.—City will improve streets with sand-oil paving. Address The Mayor.

Fla., West Palm Beach.—Palm Beach county voted \$800,000 bonds, \$750,000 being for construction of roads and \$50,000 for funding indebtedness. Address County Comms. (Noted in April.)

Ga., Atlanta.—City will pave Alabama St. from Central Ave. to Broad St. with granite blocks; Street Committee receives bids until June 4; W. E. Chambers, Purchasing Agent. (See Machinery Wanted.)

Ga., Quitman.—Brooks county, W. R. Knight, Clerk, recalled election for bonds for road construction.

Ky., Louisville.—City let contract Henry Bickel Co., Louisville, at \$339.75 to pave Howard St., 18th to 20th Sts., with vitrified block; D. R. Lyman, City Engr. (Bids lately noted.)

Ky., Louisville.—Board of Public Works let contract American Standard Asphalt Co. at \$13,590 to pave Frank Ave. from Frankfort to 335 S. Payne St. (4 blocks) with asphalt, and at \$5000 English Ave. from Hillcrest to Crescent St. with bituminous concrete.

Ky., Madisonville.—Hopkins County Comms. rescinded action calling for election to vote on \$300,000 bonds to construct roads. (Lately noted.)

Ky., Maysville.—City will reconstruct with brick paving and cement curbing portions of East 2d, Bridge, 3d, Sutton and Market Sts.; 35,000 sq. yds. paving; 19,500 lin. ft. concrete curb; J. Wesley Lee, Mayor, and Council receive bids until June 7; J. N. Foster, Chmn. Internal Improvement Com. (See Machinery Wanted.)

Ky., Monticello.—Wayne county, J. S. Sandusky, County Judge, votes July 24 on \$200,000 bonds to build 75 mi. road within next 2 or 3 years. (Lately noted.)

La., Amite.—Tangipahoa parish will construct about 8 1/2 mi. dirt road east and west of Amite; about 20,000 yds. dirt; Police Jury receives bids until June 15; J. E. Kerrigan, Engr., Hammond. (See Machinery Wanted.)

La., New Orleans.—General Realty Co. (owners of Harahan City property) let contract at about \$11,000 to S. A. Calonge Sons to lay Schillinger sidewalks throughout property.

Ky., Pineville.—Bell county contract (bids lately noted for June 5) for road improvements between Middleboro and Four Mile, includes about 14 mi. grading; is part of 55 mi. road construction, with 2 bridges, for which \$250,000 was previously noted voted; placing of metal on roads (14 mi.) will be let to contract later; Culton & Bailey, Engrs., Pineville; W. C. Bingham, County Clerk.

Ky., Vanceburg.—Lewis county will improve first section Salt Lick Rd., from Vanceburg to Valley, 7 mi.; Fiscal Court receives



bids until June 5; O. P. Pollitt, County Clerk. (See Machinery Wanted.)

Ky., Williamsburg.—Whitley county, S. S. Lawson, Atty., will construct 62 mi. pike roads; date of opening bids not set; \$250,000 previously noted voted; H. F. Davis, County Engr.; wants road machinery. (See Machinery Wanted.)

La., Alexandria.—City let contracts to A. R. Young & Co., Lawrence, Kans., at total of \$93,232.80 to pave streets as follows: Bolton Ave. at \$58,833, vertical fiber brick; Lee St. at \$31,268.60, vertical fiber brick; 8th St. at \$131.20, gravel; Sol Well, City Secy. (Call for bids lately noted.)

Md., Baltimore.—Maryland State Roads Corp., O. E. Weller, Chrmn., 601 Garrett Bldg., Baltimore, Md., will build 3 sections State highway, about 4.12 mi., in Baltimore, Cecil, Caroline and Talbot counties; bids until June 22. (See Machinery Wanted.)

Md., Baltimore.—City let contract Patrick Flanagan & Sons, 129 E. Lexington St., at \$327 to pave streets around City Hall with sheet asphalt; Holliday St. from Lexington to Fayette, Fayette St. from Guilford Ave. to Gay St., and Guilford Ave. from Fayette to Lexington St.; also has contract at \$325.75 to pave Patterson Park Ave. from North Ave. to Clifton Park, 1550 sq. yds., with sheet asphalt. (Call for bids lately noted.)

Md., Rockville.—Montgomery county will construct 1.38 mi. State-aid road along Clarksburg Rd. between Burdette and Boyd; County Commrs. receive bids until June 15. (See Machinery Wanted.)

N. C., Asheville.—City will construct about 5000 sq. yds. concrete sidewalks, concrete curb and gutter and retaining walls, including necessary grading; bids until June 10; J. E. Rankin, Mayor. (See Machinery Wanted.)

N. C., Bryson City.—Swain County Highway Commrs. let contract to Reed & Wells for 8 mi. grading; about 80,000 yds.; one-third rock; balance earth; T. M. Howerton, Engr.

N. C., Morgantown.—City will construct 7000 sq. yds. concrete paving and 5000 lin. ft. concrete curb; R. W. Pipkin, Town Mgr., receives bids until June 7. (See Machinery Wanted.)

N. C., Pilot Mountain.—City let contract to Smith & Swinney to grade and soil streets.

Okla., Tulsa.—City is considering election to vote on \$100,000 bonds to construct boulevard. T. C. Hughes, City Engr.

S. C., Greenwood.—City contemplates voting on \$100,000 bonds to improve streets. Address The Mayor.

S. C., Greenville.—Greenville County Commissioners engaged P. F. Patton of Hendersonville, N. C., as engineer to supervise road construction authorized under \$950,000 bond issue; Commrs. plan to issue at first \$200,000 of bonds and additional amounts as needed until entire issue is expended; will improve total of about 400 mi. (Noted in April.)

S. C., Sumter.—City will vote on \$250,000 bonds to pave streets and sidewalks. Address The Mayor.

Tenn., Columbia.—City rejected bids to construct about 8000 sq. yds. asphalt-concrete pavement on macadam base, 14,200 yds. asphalt-macadam mixed method on macadam base, and 3800 ft. combined curb and gutter; will invite new bids; E. E. Irwin, Recorder. (Call for bids lately noted.)

Tenn., Decatur.—Mclain county will vote on \$100,000 bonds to construct road across county and connecting with Rhea county roads. Address County Commrs.

Tenn., Fayetteville.—City will expend \$20,000 to improve streets. Address The Mayor.

Tex., Anderson.—Grimes county, Road Dist. No. 6, votes June 15 on \$150,000 bonds to construct roads. Address County Commrs.

Tex., Anderson.—Grimes County Road Dist. No. 2, Reid Rikard, official in charge, is proceeding with construction of 10 mi. gravel roads and steel bridges; J. G. Browne Co., 708 Stewart Bldg., Houston, Engr. and Contr.; construction on cost, plus fixed amount.

Tex., Ballinger.—Runnels county votes June 5 on special tax to construct roads. Address County Commrs. (Bond issue of \$120,000 lately noted defeated.)

Tex., Beaumont.—City voted \$85,000 bonds to pave streets; C. L. Scherer, City Engr. (Lately noted.)

Tex., Dallas.—City Commrs. let contracts aggregating \$130,000 to pave streets: Levy & Levy of Muskogee, Okla., at \$38,557.65 to pave Bishop St. from 6th St. to Zang's Blvd., reinforced concrete; Standard Engineering &

Construction Co., Dallas, at \$19,114.39, Sycamore St. from Peak to Fitzhugh, concrete and Uvalde rock asphalt; same company, at \$24,657.22, Caddo St. from Ross to Watt, concrete and Uvalde rock asphalt; Texas Bitulithic Co. of Dallas, at \$22,667.37, Bellevue St. from Akard to near Austin, bitulithic, and Oak Lawn Ave. from Lemmon St. to city limits, bitulithic.

Tex., Junction.—Kimbly County Commrs. will grade and gravel 7 mi. of streets in Junction; receive bids until June 14; J. B. Randolph, County Judge. (See Machinery Wanted.)

Tex., Marshall.—Harrison county let contract to Smith Bros., Crockett, Tex., to construct 25 mi. gravel road; \$200,000 available; N. P. Turner, Engr. (Bids lately noted.)

Tex., Sweetwater.—City votes June 10 on \$5000 bonds to improve streets. Address The Mayor.

Va., Christiansburg.—Montgomery county, Christiansburg Dist., votes July 6 on \$100,000 bonds to improve roads. Address County Commrs.

Va., Culpeper.—Culpeper county, W. E. Coons, Clk., defeated lately-noted \$100,000 bonds for macadam road construction.

Va., Richmond.—City Council appropriated \$25,619 to improve 14th St. from Cary St. to Mayo Bridge; Chas. E. Bolling, City Engr.

Va., Richmond.—City let contract C. S. Luck to grade streets in Scott's Addition; 70,000 yds. grading.

Va., Richmond.—City invites bids until June 8 for 2-in. bituminous macadam paving on 6-in. gravel base and for graveling streets; Chas. E. Bolling, City Engr. (See Machinery Wanted.)

Va., Stafford.—Stafford County Supvrs. will improve road from Mountain View to Garrisonville; county will contribute \$200 toward cost, balance to be paid by State and automobile association.

W. Va., Charleston.—City will grade, pave and curb portions of Pennsylvania Ave. and Fourth Ave.; B. A. Wise, City Mgr., receives bids until June 7; J. M. Clark, City Engr. (See Machinery Wanted.)

W. Va., Charleston.—Kanawha county voted \$750,000 bonds to construct roads. Address County Commrs. (Lately noted.)

W. Va., Grafton.—City Commrs. invite bids until June 14 to pave Latrobe St. from exchange mill to McGraw Alley; 2000 sq. yds.; standard brick; 361 lin. ft. concrete curb; also combination curb and sidewalk with steel reinforcement; plans and specifications on file with City Clerk; city to remove old brick and prepare grade for pavement.

W. Va., Huntington.—Cabell county voted \$800,000 bonds to construct roads. Address County Commrs. (Lately noted.)

W. Va., Huntington.—City let contract Jack Ullom to grade, curb and pave Cedar, Sycamore and Davis Sts., Oney and Springdale Aves., and to Geo. Kenkle to curb and pave alley between 6th and 7th Aves. and another between 8th and 9th Aves. A. B. Maupin, City Engr. (Lately noted.)

W. Va., Fairmont.—Marion county, Fairmont Dist., votes June 21 on \$100,000 bonds to construct roads; Chaney & Armstrong, Engrs. (Lately noted.)

## SEWER CONSTRUCTION

Ark., Argenta.—Sewer Improvement Dist. No. 1 work is progressing; Moreno, Brooks & Burkham, Contrs., Syndicate Trust Bldg., St. Louis, Mo., have completed about 75 per cent. of vitrified tile sewer (storm and sanitary) and about 25 per cent. of reinforced concrete sewer; construction to cost within \$30,000; Lund & Hill, Engrs., Little Rock, Ark.

D. C., Washington.—District Commrs. let contract W. F. Brenizer Co., 141 Q St. N. W., Washington, D. C., at \$18,621 to construct Arizona Ave. trunk sewer.

Fla., Miami.—City let contract J. J. Gulina Co. to construct about 6 mi. sewers in Southside, Riverside and North Miami; this is third section of 18-mi. sewer contract; B. G. Klyce, City Engr.

Fla., Tampa.—City, D. B. McKay, Mayor, voted lately-noted \$250,000 bonds for completion of sewer system.

Ga., Macon.—City let contract C. F. Pierce at \$3184.65 to construct sewage-disposal plant in Cherokee Heights.

Ga., Tallapoosa.—City votes June 30 on \$5000 bonds to construct sewers. Address The Mayor. (Lately noted.)

Md., Baltimore.—City let contract Slack & Slack Co., York Rd. and 26th St., at \$99,933.84

to construct storm-water drains in various sections of city. (Lately called for bids.)

Mo., Maplewood.—City, M. F. O'Brien, Clerk, will open bids June 9 (as lately stated) on 7-ft. tunnel sewer through solid rock; cost about \$50,000; also have plans ready within next 90 days for brick and pipe sewer, Public Sewer No. 2; cost about \$50,000; S. W. Shinkel, Engr. (For tunnel sewer see Machinery Wanted.)

N. C., Winston-Salem.—City will construct reinforced concrete sewage-disposal plant and extend main sewer lines 2½ mi.; bids until June 15; J. L. Ludlow, Engr.; L. F. Owen, Chrmn. Committee on Sewers. (See Machinery Wanted.)

Okla., Tulsa.—City is considering election to vote on \$100,000 to construct sewers; T. C. Hughes, City Engr.

Tenn., Cleveland.—City will issue \$75,000 bonds for sewer system. Address The Mayor. (Lately noted.)

Tex., Beaumont.—City voted \$30,000 bonds to construct sewers; C. L. Scherer, City Engr. (Lately noted.)

Tex., Dallas.—Southern Methodist University let contract Winslett-Eldredge Co. at about \$6000 to construct about 1 mi. 10-in. sewer; this will complete main sewer work on campus.

W. Va., Mill Creek.—City is considering construction of sewer system; Burton Wilson, Engr.

## TELEPHONE SYSTEMS

Ark., Little Rock.—Cypress Junction Telephone Co., organized with J. D. Arnold (State Bank Bldg.), Prest.; L. M. Thomas, Secy., and F. C. Cusack, Treas.; will construct telephone system 4½ mi. long; let contract Lige Ives.

Tenn., Bristol.—Cumberland Telephone & Telegraph Co. (main office, Louisville, Ky.) is reported as contemplating improvements.

Tenn., Nashville.—Automatic Telephone Co. Incptd. by C. L. Fisher of Jacksonville, Fla., and others.

## TEXTILE MILLS

Ga., Atlanta.—Cotton Goods.—Exposition Cotton Mills' \$11,000 additional building, reported last week, will be a cloth storage warehouse. (See Warehouses under Buildings Proposed.)

Tenn., Memphis.—Cotton Goods.—Chisca Mfg. Co., authorized capital \$500,000, is planned for organization to build cotton mill; T. R. Winfield, S. B. Anderson and L. D. Falls, Com., care of Business Men's Club.

## WATER-POWER DEVELOPMENTS

Ga., Atlanta.—Atlantic Power & Properties Co. is change of name from Atlantic Stone Co.; increased capital from \$30,000 to \$60,000 and obtained privilege of constructing hydroelectric plants; owns extensive quarries and river rights on Broad River in Elbert county; Wm. Hurd Hillyer, Treas., 835 Trust Co. of Georgia Bldg.

Ky., Ashland.—U. S. Engr. Office, H. Jervey, Lt.-Col., Engrs., Cincinnati, O., will build power-house at Dam No. 29, near Ashland; bids until June 15.

Tenn., Braemar.—Braemar Power Co. organized; W. P. Dungan, Prest.; Sexton W. Dungan, V.-P.; L. D. Gastiger, Secy.-Treas.; J. H. Graveson, Gen. Mgr.; will construct hydro-electric plant at Braemar Falls on Laurel Fork Creek; develop 1000 H. P.; build dam 100 ft. high and convey water from dam by flume to mountainside, where penstocks will convey water to water-wheels. (Pittsburgh Power Co., lately noted as to build plant, states it will do preliminary work, such as constructing road to site, etc.)

Va., University.—W. Washabaugh, Ch. Engr. of Greensboro, Northern & Atlantic Ry. Co., represents parties interested to develop water-power in territory having timber suitable for paper pulp, tanning, etc.; desires correspondence with paper company seeking location.

## WATER-WORKS

Ala., Scottsboro.—City will vote on \$5000 bonds to enlarge water-works. Address The Mayor.

Ark., Eldorado.—Arkansas Light & Power Co., Arkadelphia, Ark., acquired Eldorado Light & Water Co.'s plant; will extend water system; needs 3000 ft. 4-in. and 6-in. grade B cast-iron pipe, hydrants, etc. (See Electric Plants and Machinery Wanted.)

Ark., Texarkana.—City granted franchise Chas. E. Bramble for water-works.

Ga., Tallapoosa.—City votes June 30 on \$35,000 bonds for water-works. Address The Mayor. (Lately noted.)

Md., Cumberland.—Dingle Park Land Co., Robt. E. Kling, Prest., 48 Third National Bank Bldg., intends to install gravity water system. (See Land Developments.)

Miss., Boyle.—City plans to issue \$7500 bonds for water-works; W. A. McDill, Mayor.

Mo., Butler.—City, H. G. Cook, Mayor, will improve water-works at cost of \$40,000; construct filter plant, install pumps, motors, etc.; erect brick building; capacity of extension 500,000 gals.; bids opened June 22; Engineers, Harper & Stiles, Grand Ave., Temple, Kansas City; previously noted. (See Machinery Wanted.)

Mo., Rolla.—City, W. J. Pierce, Clerk, let contract to Chicago Bridge & Iron Co., Chicago, for steel water tower, 30 ft. high, on concrete base; capacity 250,000 gals.; cost \$3690. (Bids lately noted.)

Okla., Beggs.—City defeated lately-noted bonds for water-works.

Tex., Dallas.—Southern Methodist University let contract to J. E. Faucett at about \$20,000 to drill well to depth of about 3000 ft. to reach Trinity sands strata; install 6-in. pipe; estimated daily capacity 750,000 gals.; also soon let contracts for following: Aerating pool near well, pumping plant and 100,000-gal. elevated steel tank for storage; bottom of tank will be about 70 ft. from ground and distance to top about 93 ft.; in future, tank will be encased in ornamental brick tower; observatory on top.

Tex., Fort Sam Houston.—Government will build pumphouse and pumping plant and move steel tank at old target range near Fort Sam Houston; bids until June 11; lately noted. Address Constructing Quarter-master. (See Machinery Wanted.)

W. Va., Bluefield.—City is reported to build water and light plant. Address The Mayor.

## WOODWORKING PLANTS

Ky., Barbourville.—Wagon Parts, etc.—T. W. Minton & Son are reported to double capacity of plant.

Mo., Kansas City.—Wagons.—Schaefer Wagon Co., capital \$5000, incptd. by Fred Schaefer, E. T. Adams, L. V. Burns and others.

N. C., Hickory.—Cabinets.—Crouch Cabinet Co., capital \$2400, incptd. by M. G. Crouch and others.

N. C., Warsaw.—Handles.—Baldwin Tool Works of Richmond, Va., is reported as contemplating establishment of handle factory.

Tenn., Harriman.—Cooperage.—Watts Cooperage Co. increased capital stock from \$10,000 to \$25,000 and changed name to Harriman Hending Co.

Tenn., Knoxville.—Cooperage.—Golden Ash Cooperage Co. increased capital stock from \$10,000 to \$50,000.

## FIRE DAMAGE

Ala., Attalla.—R. & F. Lumber Co.'s planing and saw mills; estimated loss \$20,000.

Ala., Montgomery.—Montgomery Liquor Co.'s store, building owned by Mrs. D. F. West; W. J. Toole's store; Heiburn Candy Co.'s store; total loss \$20,000.

Fla., Tampa.—Maximo Diaz's store at Scott and Cass Sts.; loss \$4000.

Ga., Lagrange.—Dr. L. D. Mitchell's residence at 188 Hill St.

Ga., Ocella.—Planters' Warehouse Co.; loss \$20,000.

La., Berwick.—G. E. Smith's residence; Cecil Gilmore's residence; Mrs. Nettie Leopold's dwelling; loss \$9000.

La., Crowley.—Ringnet's barber shop, Variety Store, both buildings owned by Morris estate; Paul C. Marx's tailoring establishment.

Md., Cambridge.—S. S. Slacum's cannery in Lakes Dist.

Md., Denton.—Hughes Lumber & Coal Co.'s lumber yard and railroad station were not damaged by fire as lately reported.

Md., Mt. Airy.—Wm. Selby's boarding-house, 2 mi. north of Mt. Airy; loss \$4000 to \$5000.

Mo., Carthage.—Consolidated Marble & Stone Co.'s mill; estimated loss \$5000.

Mo., Webster Groves.—Wm. T. Piltcher's residence; loss \$3000.

N. C., Fayetteville.—Carolina Power Co.'s substation.

N. C., Method.—Method Air Blast Gin Co.'s plant; estimated loss \$3000.

N. C., Zebulon.—Zebulon Hosiery Mill damaged; loss \$3000 to \$3000.

N. C., Weaverville.—Elisha Lister's residence.

N. C., Wilmington.—Caddie-house at Cape Fear Country Club; loss about \$3000.

Okla., Oklahoma City.—C. Y. Temple's feed and grain elevator; loss \$125,000.

Tenn., Memphis.—Dawson Bros. Mfg. Co.'s vinegar plant at Marble and Nichols Sts.; loss \$10,000.

Tenn., Nashville.—Gregg Baker's residence in West Nashville; loss \$3000 to \$4000.

Tex., El Paso.—Dr. Belle P. Lowry's residence; loss \$7200.

Tex., Lockhart.—Henry Peters' residence near Lockhart.

Tex., Mart.—J. O. Bowles' residence; loss \$600.

Tex., Nacogdoches.—High school dormitory; loss \$10,000. Address School Trustees.

Tex., Vernon.—Kell Milling Co.'s Anderson elevator.

Tex., West.—W. R. Glasgow's building; Frank Dulock's building; loss \$14,000.

Va., Lynchburg.—Hotel Carroll was not damaged by fire as recently reported.

W. Va., Jarrolds Valley.—River View Hotel, Robt. C. Jarrold, Propr.; building owned by J. A. Barret.

### COLLAPSED

Va., Lynchburg.—Portion of Booker's tobacco warehouse; loss about \$3000.

## BUILDING NEWS

### BUILDINGS PROPOSED

#### APARTMENT-HOUSES

Ark., Little Rock.—Robt. E. Farrell, 1418 Louisiana St., will erect apartment-house at 11th and Louisiana Sts.; 3 stories; six room suites; fireproof.

Ky., Lexington.—Oldham & Foushee are reported to erect 40-room apartment-house.

La., New Orleans.—Magnus Pederson will erect duplex apartment at Park City Ave. and Olympia St.; 2 garages in connection; cost \$10,000; also erect double raised cottage in Grand Route St. John near Esplanade Ave.; cost \$3500.

Md., Baltimore.—Isaac E. Emerson will erect apartment-house next fall at 2502 Eutaw Pl.; Jos. Evans Sperry, Archt., 409 Calvert Bldg., Baltimore; Wm. H. Parker, builder, Emerson Hotel, Baltimore, will let subcontracts.

Md., Baltimore.—B. Harris Henderson, 937 Equitable Bldg., is having plans prepared by John R. Forsythe, 232 St. Paul St., Baltimore, for 4 apartment-houses on Denison St., Brookline; 40x120 ft. each; 3 stories; brick; central steam-heating plant; electric light; cost about \$115,000; plans ready about June 15; address owner.

Mo., Kansas City.—W. N. Gedney will erect apartment-house; 3 stories; 6 suites; brick and terra-cotta; cost \$17,000.

Mo., St. Louis.—Kenmar Investment Co., 207a Ashland Ave., has plans by Walter T. Sheehan, same address, for 2 apartment-houses on Shaw Ave.; 32x54 ft. each; mill construction; slate, tile and composition roof; hot-water or hot-air heat; electric lighting; cost \$8000 each; construction by owners.

N. C., Henderson.—Jas. S. Poythiers will erect building for stores and apartments or opera-house. (See Theaters.)

Tenn., Nashville.—Chas. Cohn will erect apartment-house at 6th Ave. and Demonbreun St.

Tex., El Paso.—R. I. Rushing will erect 3-story apartment-house; cost \$28,000.

Tex., El Paso.—J. E. Bischoff will erect adobe and brick tenement-house and brick apartment-house. (See Dwellings.)

Va., Norfolk.—J. F. Whitehurst will erect 2-story 2-family brick apartment-house on 30th St.; cost \$4750.

Va., Norfolk.—Mrs. Edna J. Chiry will erect 2-family 2-story apartment-house on Debevoise Ave.; cost \$3225.

Va., Norfolk.—A. C. Swain will erect two 2-story brick apartments on 12th and 13th Sts.; cost \$19,000.

Va., Norfolk.—C. R. White will erect two 2-story brick 2-family apartments on Westover Ave.; cost \$7000.

Va., Norfolk.—Eugene Moore will erect 2-story frame apartment-house on 19th St.; cost \$3600.

Va., Richmond.—R. L. Dibreil will repair brick apartment-house at 12 E. Main St.; cost \$4500.

W. Va., Wheeling.—W. M. McLain will erect apartments at 12th and Eoff Sts.; cost \$17,000.

#### ASSOCIATION AND FRATERNAL

Fla., Sanford.—B. P. O. E. will erect building on Park Ave.; cost \$20,000, exclusive of equipment.

Ky., Louisville.—Y. W. C. A. receives bids until June 18 through John Bacon Hutchins, Columbia Bldg., Louisville, to erect building; cost \$350,000; plans and specifications at office of Archt. (Previously noted.)

Tenn., Johnson City.—B. P. O. E. No. 825 will erect store and lodge building on

Spring St.; 50x100 ft.; ordinary brick construction; Barrett roofing; wood floors; 1-pipe steam-heating plant; electric lights from city plant; freight elevator 5x6 ft.; bids opened about July 15; cost \$20,000 without mechanical equipment; D. R. Beeson, Archt., Johnson City; address owner. (Lately noted.)

Tenn., Jonesboro.—Jr. O. U. A. M. will erect building.

#### BANK AND OFFICE

Ark., Pine Bluff.—Merchants and Planters' Bank will remodel building at Baroque and Main Sts. for bank; 58x100 ft.; ordinary construction; tin roof; concrete and tile floor; steam heat; electric light; cost \$6000 to \$10,000; plans indefinite; architect not selected; work to commence June 20 to July 1. (Lately noted.)

Fla., Fort Pierce.—East Coast Lumber Co. is having plans prepared by W. B. Camp, Board of Trade Bldg., Jacksonville, for office building; 2 stories; 20x40 ft.; brick; press-brick front; steam heat; tile roof and floors; hardwood floors upstairs; construction, by company's force, begins about July 1.

Fla., Miami.—Miami Bank & Trust Co. is reported to expend \$5000 for improvements to building to include system of vaults.

Fla., Sarasota.—Dr. Joseph Halton will erect store and office building. (See Stores.)

Fla., Tampa.—Exchange National Bank, Alonzo C. Clewis, Prest., will erect bank building; Francis J. Kennard, Archt., 409 American National Bank Bldg., Tampa.

Ga., Chatsworth.—Dr. W. H. Wilson and Dr. J. B. Garrett will erect store and office building. (See Stores.)

Mo., St. Louis.—Orean E. & R. G. Scott will erect office building at 8th and Chestnut Sts.; 3 stories and basement; terra-cotta; Italian Renaissance; second-floor corridors, tile with marble base; plate-glass partitions to height of doors; mahogany and white marble finish on second floor; stairways with marble treads and railers; wainscoting of Italian marble; cost about \$50,000; Albert B. Groves, Archt., St. Louis.

N. C., Asheville.—Wiley B. Brown leased building at 10 N. Pack Sq. to Southern Coal Co.; front, hardwood flooring, metal ceiling, heating plant, etc., will be installed.

N. C., Kinston.—Mrs. Alice Hunter will erect store and office building. (See Stores.)

Tenn., Jonesboro.—First National Bank is erecting building; steam heat.

Tenn., Nashville.—Nashville Property Co. will erect store and office building. (See Stores.)

Tex., Dallas.—Drs. R. W. Baird, H. M. Doolittle, A. I. Folsom and R. B. McBride will erect building for doctors' offices.

Tex., Gainesville.—Producers' Refining Co. will erect office building; pressed brick; 22x30 ft.

Va., Rosslyn.—Arlington Trust Co., E. W. Stearns, Prest., opened bids for addition and alterations to bank; Arthur L. Smith, Woodward Bldg., Washington, low bidder at \$5500; addition 14x59 ft.; brick; Carey roof; remodeling includes terrazzo floor; hot-water heat; electric light; Frank Upman, Archt., Woodward Bldg., Washington.

W. Va., Ridgeley.—People's Bank will erect building; one story; brick; metal roof; cost \$5000 to \$6000; other details not determined.

#### CHURCHES

Ala., Bay Minette.—Bay Minette Baptist Church receives bids at office of Chas. Hall, Chmn. of Building Com., until June 26 to

erect brick church; plans and specifications at office of Mr. Hall.

Ark., Blytheville.—First Baptist Church will erect parsonage. Address The Pastor.

Ga., Savannah.—First Baptist Church will enlarge building; Henri Wallin, Archt., Savannah.

Ky., Glasgow.—Church of Christ, Green St., will erect building to replace structure lately noted damaged by fire; brick; about 40x60 ft.; 1 story; sheet-metal roof; probably hardwood floors; inclined floor; warm-air furnace to cost about \$125; electric lights from city plant; cost \$4000 without mechanical equipment; John Harlin may be addressed.

Ky., Lexington.—Broadway Christian Church is considering erection of building to replace present structure. Address The Pastor.

Ky., Scottsville.—Methodist Episcopal Church will erect brick building; cost \$15,000; contract to be let as whole; R. E. Turbeville, Archt., Nashville, Tenn.

Ky., Scottsville.—Baptist Church has plans by R. E. Turbeville, Nashville, to remodel church; cost about \$10,000.

Md., Baltimore.—Church of the Transfiguration has plans by A. Lowther Forrest, Law Bldg., Baltimore, for parish-house at West Arlington; 90x60 ft.; stone and shingle; slate roof; wood floor; hot-water heat, separate; electric light; cost about \$15,000; bidders are: Gladfelter & Chambers, 729 Roland Ave.; Seybold & Eigenbrod, Bellview Ave.; Arthur P. West, 15 E. Fayette St.; R. B. Mason, 318 W. Madison St.; C. W. Littleton & Son, 4313 Liberty Heights Ave.; John F. Hardy, 4290 Groveland Ave.; all of Baltimore.

Md., Baltimore.—Wilton Heights M. P. Church opens bids June 15 to 20 to erect building at West Arlington; about 35x60 ft.; stone construction; slate roof; wood floors; steam or hot-water heat; electric lighting; cost about \$15,000; Owens & Sisco, Archts., Continental Bldg., Baltimore, who may be addressed. (Lately noted.)

Md., Cumberland.—Trinity Methodist Church, Rev. Harry Wheeler, pastor, is having plans prepared by W. A. Rayfield & Co., Box 619, Birmingham, Ala., to erect building; 75x100 ft.; ordinary construction; asbestos shingle roof; steam heat; electric lighting; cost \$10,000. Address Archts. (Lately noted.)

Md., Mt. Washington.—Elderslie M. E. Church, Rev. L. A. Thirkeld, pastor and Prest. of Trustees, Mt. Washington, has plans by Haskell & Barnes, 301 N. Charles St., Baltimore, for building on Elderslie Ave. and Pimlico Rd.; 40x74 ft.; stone walls; fading green slate roof; wood floors; steam heat; gas and electric lighting; concrete sidewalks; cost \$8000; bids (now being invited) opened June 22; address architects; trustees desire prices on sectional steam boiler. (See Machinery Wanted.)

Miss., Biloxi.—First Evangelical Lutheran Church, Rev. Mr. Brink, pastor, plans to erect building at Jackson and Thomas Sts.

N. C., Wilmington.—Presbyterian congregation, Rev. S. E. Foote, pastor, opens bids June 5 to erect brick building; 75x50 ft.; cost \$10,000 to \$15,000.

Okla., Atoka.—First M. E. Church South, J. H. Humphreys, Secy. Building Comm., will erect building; ordinary construction; composition roof-asphalt with green coating; yellow pine floors; direct steam heat; cost \$9000; bids opened June 3; J. O. Parr, Archt., Oklahoma City. Address Mr. Humphreys. (Lately noted to open bids June 7.)

Tenn., Kingsport.—Methodist Episcopal Church South will erect \$10,000 building. Address The Pastor.

Tenn., Kingsport.—Baptist Church will erect building; cost \$10,000. Address The Pastor.

Va., Norfolk.—Colley Memorial Presbyterian Church will erect annex to Sunday-school; 53x22 ft. Address The Pastor.

W. Va., Charleston.—United Brethren Church will erect 2-story brick and hollow tile building on Tennessee St.; cost \$20,000; H. Rus Warner, Archt., Charleston.

W. Va., Clarksburg.—Stealey Heights M. E. Church will erect building; cost about \$15,000. Address The Pastor.

W. Va., Huntington.—Guyandotte M. E. Church, Rev. R. H. Mills, pastor, will let contract in about 3 weeks to erect Sunday-school building; 36x70 ft.; ordinary construction; metal roof; wood floors; remodel steam-heating plant; cost \$5000; Verus T. Ritter, Archt., Huntington, who may be addressed. (Lately noted.)

W. Va., Marlinton.—Presbyterian Church,

Rev. J. M. Walker, pastor, is having plans prepared by W. A. Rayfield & Co., Box 619, Birmingham, Ala., for building; 90x100 ft.; ordinary construction; metal shingle roof; steam heat; electric lighting; cost \$10,000; date of opening bids not decided. Address Archts. (Lately noted.)

W. Va., Moundsville.—Catholic Church will erect building. Address The Pastor.

#### CITY AND COUNTY

Ga., Eatonton.—Library.—City is having plans prepared by Chas. Edw. Choate, Atlanta, for Carnegie library; ordinary construction; slate roof; steam heat.

Ga., West Point.—Auditorium.—City, Benj. H. Hill, Chmn. of Comm., will probably have plans prepared by Walker & Chase, Atlanta, for auditorium; 70x140 ft.; ordinary construction; electric light; cost about \$13,500. (Lately noted.)

Okla., Tulsa.—Market.—City let contract at \$4180 to Brandley & Boydell, Tulsa, to erect municipal market; J. W. Hawk, Archt., Tulsa. (Lately noted.)

Mo., St. Louis.—Zoo.—Zoological Society of St. Louis has plans by Tom P. Barnett Co., Central National Bank Bldg., St. Louis, for animal-house in Forest Park; 75x50 ft.; 1 story, 25 ft. high; roof of skylight glass; 10 cages; completion by Oct. 1; Clinton H. Fisk, Ch. Engr. Constr. (Lately noted.)

Tenn., Cleveland.—City Hall.—City voted \$15,000 to erect city hall; details not determined. (Lately noted.)

Va., Richmond.—Fire Station.—Fire Commissioners acquired site at 30th and Bainbridge Sts. and will erect firehouse; bungalow type; Carnell & Johnston, Archts., Richmond.

#### COURTHOUSES

Ga., Chatsworth.—Murray county has plans by Alexander Blair, Macon, to erect courthouse; reinforced concrete; fireproof; tile roof; cost \$50,000; begins construction July 1. (Lately noted.)

Tex., Del Rio.—Val Verde county is having plans prepared by Atlee B. Ayres, 626-27 Bedford Bldg., San Antonio, to remodel courthouse; 100x100 ft.; ordinary construction; Taylor's Target and Arrow Brand tin roofing; tile floors; gravity return hot-water heating system; cement sidewalks and curbing; cost about \$20,000. Address Judge J. Q. Henry, Del Rio. (Lately noted.)

#### DWELLINGS

Ala., Birmingham.—Robt. Stephens will erect residence; 2 stories; brick veneer; cost \$7500.

Ala., Birmingham.—H. E. Bissell will erect 2-story brick veneer residence; cost \$5500.

Ark., Texarkana.—Mrs. E. E. Porter is reported to erect \$50,000 residence.

Ark., Texarkana.—T. A. Brown, Stamps, Ark., is reported to erect \$50,000 residence.

D. C., Washington.—Chas. W. King, Jr., 529 New York Ave. N. W., has plans by N. R. Grimm, Bond Bldg., Washington, for 2 dwellings at 2124-6 O St. N. W.; 16.8x37 ft.; brick; slate and tin roof; hot-water heat; electric light; cost \$7000; construction by owner.

Fla., Fellsme.—C. E. Patterson, Oklahoma City, will erect 2-story brick building to replace lately-burned structure.

Fla., Jacksonville.—Fred Boyd will erect 2-story frame residence on Osceola St.; cost \$3300.

Fla., Jacksonville.—H. G. Lee will erect 2-story frame dwelling on 8th St.; cost \$3600.

Fla., Jacksonville.—Henry Taylor will erect 2-story frame residence and garage on Fors St.; cost \$7250.

Fla., Jacksonville.—R. Lee Seville will erect brick-veneer residence and 2-story frame garage on Riverside Ave.; cost \$6000.

Fla., Quincy.—Dr. R. F. Godard will erect residence; 2 stories; cottage type; ordinary construction; shingle roof; hardwood floors; cost \$4000; furnace, \$200; A. P. Braid, Archt., Quincy; bids opened July 15; is in market for millwork and building material; address owner. (See Machinery Wanted.)

Fla., Tampa.—J. R. Chambers will erect \$5000 residence at Oak Ave. and Morgan St.; 2 stories; frame.

Fla., Tampa.—J. F. Vaughn is having plans prepared by A. L. Shaw, 307 American National Bank Bldg., Tampa, for residence; frame; composition roof.

Fla., Tampa.—Fred Dalton will erect residence; hollow tile and stucco—tile roof; cost about \$6000; P. Thornton Marry, Archt., Citizens' Bank Bldg., Atlanta.



Fla., Tampa.—W. P. Lawrence will erect bungalow; frame; hardwood floors; composition shingles; cost \$3500; Bonfoey & Elliott, Archts., Petteway Bldg., Tampa.

Fla., Thonotosassa.—W. E. Lee contemplates erecting residence on Ft. King Ave.

Fla., Thonotosassa.—L. C. Edwards will erect residence at Florence and Ft. King Aves.

Ga., Atlanta.—B. Vignaux will erect two-story dwelling at 405 Bedford Pl.; cost \$4500.

Ga., Atlanta.—J. V. Daniel & Son will erect three 2-story brick-veneer dwellings at 379-81-83 N. Jackson St.; cost \$12,000; day labor.

Ga., Dalton.—Crown Cotton Mills, G. W. Hamilton, Prest., will erect about 100 operatives' cottages.

Ga., Jackson.—W. L. Etheridge has plans by Hupp & Shelverton, Macon, Ga., for dwelling; frame; stone trim; cost \$3000.

Ky., Lexington.—A. Felsenthal will erect bungalow in Creston Hill Subdivision.

Ky., Louisville.—Mrs. J. B. Speed will erect music-room to residence at 5th St. and Ormsby Ave.; brick; cost \$7000.

Ky., Louisville.—S. J. McBride will erect frame dwelling at 2146 Sherwood St.; cost \$3300.

Ky., Louisville.—Mrs. Henry Terstegge will erect dwelling at 2421 Cherokee Parkway; hollow tile; cost \$14,000.

Ky., Scottsville.—Dr. H. M. Meredith has plans by R. E. Turbeville, Nashville, Tenn., for residence; contract let June 3.

La., Lake Charles.—Dr. Oscar L. Howard, Hightower, Mo., is reported to erect residence.

La., New Orleans.—A. Hardaker will erect residence in Neron Place Extension.

La., New Orleans.—G. B. Harrison will erect 3 duplex residences at Napoleon Ave. and Carondelet St.

La., New Orleans.—Magnus Pedersen will erect double raised cottage. (See Apartment-houses.)

La., Shreveport.—C. L. Ratcliff will erect residence on Fairfield Ave.; brick construction.

Md., Boonsboro.—Winton Doub will erect brick dwelling.

Md., Baltimore.—Wm. O. Olwine, 930 Hampden Ave., is reported to erect 20 dwellings at Baker St. and Braddish Ave.; 2 stories.

Md., Baltimore.—Globe Realty Co., L. B. Purnell, Prest., 32 South St., is having plans prepared by Stanislaus Russell, 2900 Clifton Ave., Baltimore, for 13 dwellings on Bloomington Rd.

Md., Baltimore.—Montebello Park Co., Montebello Ter. and Harford Rd., will erect dwelling on Overland Ave. near Harford Rd.; 2½ stories; 24x26 ft.; frame; slate roof; steam heat; cost \$3600; plans and construction by owner.

Md., Baltimore.—John M. Requardt has plans by Otto G. Simonson, Maryland Casualty Tower, Baltimore, for dwelling at Guilford; 60x100 ft.; brick and stucco; glazed green tile roof; hardwood and tile floor; hot-water heat; electric light; vacuum cleaner; marble work; cost \$40,000 or more; also erect garage same style as dwelling; bids opened June 5 at architect's office; bidders are: Henry Smith & Sons, German and Light Sts.; West Construction Co., Knickerbocker Bldg.; John Waters, 23 E. Center St.; B. F. Bennett Building Co., 123 S. Howard St.; Cowan Building Co., 106 W. Madison St.; E. G. Turner, 15 E. Fayette St.; R. B. Mason, 308 W. Madison St.; Geo. Bunnecke & Son, 305 St. Paul St.; Willard E. Harn Co., 213 N. Calvert St.; Edw. Brady & Son, 1113 Cathedral St.; Gladfeiter & Chambers, 729 Roland Ave.; all of Baltimore; and Roland Park Co., Roland Park, Md. (Noted in April.)

Md., Bethesda.—Chas. S. Robb has plans by C. L. Harding, Woodward Bldg., Washington, for dwelling on Glenbrook Rd., Edgewood; 71.4x37.8 ft.; brick and stucco; slate roof; hardwood floor; hot-water or vapor vacuum heat; electric light; cost about \$18,000; Archt. taking subbids; construction to begin June 4.

Md., Bethesda.—Real Estate Investment Co. has plans by C. L. Harding, Woodward Bldg., Washington, for dwelling for client at Edgewood; 25x36 ft.; frame; shingle roof; hardwood and pine floor; hot-air heat; electric light; cost about \$4500; work by Archt. with day labor.

Md., Lanham.—T. S. Gray has plans by Macneil & Macneil, Union Trust Bldg., Washington, D. C., for dwelling; frame; stained shingle roof; hardwood floor; probably electric light; cost about \$5500; bids opened June 4.

Md., Roland Park.—Wm. H. Rittler, Baltimore, is having plans prepared by Clyde N. Friz, 1523 Munsey Bldg., Baltimore, for dwelling on Roland Ave. near St. Johns Rd.; 37x45 ft.; 2 stories; frame, shingle exterior; slate roof; hardwood floor; hot-water or steam heat; electric light; cost about \$9000; plans ready about June 5.

Miss., Clarksdale.—Gerald Fitzgerald will erect residence; 2 stories; stucco exterior; probably tile roof; steam heat; hardwood floors; cost \$10,000.

Miss., Clarksdale.—Max Landau will erect residence.

Miss., Vicksburg.—Dr. J. D. Miles will erect 2 residences; probably erect third structure.

Mo., Kansas City.—Carter T. Davis will erect 2-story brick-veneer and stucco duplex dwelling at 3715 Wabash Ave.; cost \$5000.

Mo., Kansas City.—John R. Brown will erect 1½ and 2-story dwellings at 2742-44 Woodland Ave.; frame; cost \$4000.

Mo., Kansas City.—Dr. Saml. Ayres will erect bungalow at 61st and McGee Sts.; servant's room and bath on second floor insulated with sea-grass lining; hot-water heat; cost, including garage, \$13,000; Selby H. Kurfiss, Archt., Kansas City. (Lately noted.)

Mo., Kansas City.—W. E. Pruett of Terminal Ry. Co. will erect residence at 37 W. 57th St.

Mo., Kansas City.—Lee Agee will erect 6 dwellings at 38th St. and Roanoke Rd.

Mo., Kansas City.—Edwin M. Price, associated with Henry F. Holt, Archt., will erect residence at 74th and Holly Sts.

Mo., St. Louis County.—Chas. E. Thomas, St. Louis, opened bids to erect dwelling at Southmoor; ordinary construction; tile roof; joist floor; vacuum steam heat; cost about \$25,000; T. P. Barnett Co., Archt., 724 Central National Bank Bldg., St. Louis. (Lately noted.)

Mo., St. Louis.—Roy P. Atwood has plans by Maritz & Henderson, St. Louis, for residence in Southmoor; Italian colonial style; pitched roof; matt brick exterior; tile-paved terrace across front; garage in basement; sleeping porch and sunroom.

Mo., St. Louis.—Chas. P. Van Graafeland is having plans prepared by Maritz & Henderson, St. Louis, for residence in Southmoor.

Mo., St. Louis.—Sam Koplar will erect 6 bungalows on Page Blvd.; 5 rooms, reception hall and bath; hardwood floors; furnace heat; brick and rustic stone porches; sleeping porches in rear.

N. C., Lumberton.—W. H. Shooter will erect dwelling; 24x48 ft.; galvanized roof; wood floors; electric wiring; cost \$2500.

Okla., Lawton.—John Shephard, editor of Lawton Constitution, will erect residence; cost about \$15,000.

S. C., Spartanburg.—J. W. Crawford will erect residence on Hampton Drive, Hampton Heights.

Tenn., Memphis.—F. C. Story is erecting residence at 52 S. Evergreen St.; 2 stories; 7 rooms; brick veneer; hot-water heat; cost \$4500.

Tenn., Nashville.—Prof. R. W. Selvidge of Peabody College for Teachers will erect stone residence at 1930 Capers Ave.; cost \$6500.

Tenn., Nashville.—W. L. Horn will erect 2-story brick bungalow in Belmont Heights; cost \$3500; R. E. Turbeville, Archt., Nashville.

Tex., Dallas.—University Park Building Co. is reported to erect 5 dwellings to cost \$5000 to \$12,000.

Tex., El Paso.—J. E. Bischoff will erect adobe and brick tenement-house, brick apartment-house and 4 brick bungalows; cost \$18,500.

Tex., El Paso.—Ramie Bros. will erect brick bungalow on N. Florence St.; cost \$3950.

Tex., El Paso.—Mayfield Building & Improvement Co. will erect brick bungalow in Cotton addition; cost \$6900.

Tex., El Paso.—Jolly & Morris will erect 3 brick bungalows in Bassett Addition and erect additional store to building at 312-18 Texas St.; cost \$12,000.

Tex., El Paso.—Jas. L. Marr & Co. will erect dwelling at Dallas and Rio Grande Sts.; 6 rooms; brick; composition roof; hardwood floors; cost \$3300; hot-air heat; electric wiring; plans and construction by owners. (Lately noted to erect 3 dwellings.)

Tex., Galveston.—J. E. Pearce has plans by C. D. Hill & Co., Dallas, H. F. Davis,

local manager, for residence; 2 stories; hollow tile and stucco; cost \$12,000.

Tex., Galveston.—E. R. Milroy will erect residence at 7th St. and Broadway; 2 stories and basement; frame and brick veneer; red English shingle tile roof; 2-story sun porch, 15x45 ft., and two 10x20 ft.; 12 rooms and 3 baths; cost \$10,000; Anton Korn, Archt., Galveston.

Tex., Orange.—W. E. McCorquodale will erect about 12 dwellings.

Tex., San Antonio.—Dr. G. H. Moody will erect residence at Shook Ave. and E. Mulberry Ave.

Tex., San Antonio.—Jack Neal is having plans prepared by Atlee B. Ayres, 626-27 Bedford Bldg., San Antonio, for dwelling; 2 stories; 8 rooms; cement stucco; Spanish tile roof; tile floors in bathrooms; patent plaster on walls; reported cost, \$14,000. (Lately noted.)

Tex., San Antonio.—Mrs. Ed. Steves will erect 11-room dwelling on S. Presa St.; cost \$4000.

Va., Norfolk.—H. H. Hume will erect brick and frame residence on Baldwin Pl.; cost \$4000.

Va., Richmond.—B. H. Melton will erect 2-story brick dwelling on Park Ave. between Addison and Elm Sts.; cost \$5000.

Va., Richmond.—A. L. Lawrence will erect 2-story frame dwelling on Griffin Ave.; cost \$3000.

Va., Richmond.—Matthias E. Kayhoe, Jr., will erect eight 2-story brick dwellings in West End; cost \$26,500.

Va., Richmond.—David A. Albright will erect 2-story brick dwelling at 1424 Bainbridge St.; cost \$7000.

Va., Richmond.—Elmer Hare will erect 2-story frame dwelling on Enslow Ave.; cost \$4000.

Va., Richmond.—Mrs. Mary P. Cameron will repair stores and dwelling. (See Stores.)

Va., Richmond.—W. J. Ford will erect 2-story brick dwelling on Randolph St.; cost \$3100.

W. Va., Beckley.—East Gulf Coal Co. will erect 40 dwellings. (See Coal Mines and Coke Ovens.)

W. Va., Raleigh.—Raleigh Coal & Coke Co. will erect 30 employees' residences at No. 3 Mine. (See Coal Mines and Coke Ovens.)

## GOVERNMENT AND STATE

Ala., Montgomery.—Federal.—Oscar Irwin is receiving bids to repair Federal Building; will refinish and repaint, exterior and interior, construct concrete walk in adjoining park, iron and stone fencing around park and parts of building, level and lower stone entrance, etc.; cost about \$9000.

Ga., Savannah.—Postoffice and Courthouse. Marion Lucas, Custodian, receives bids until June 15 for repairs and painting at U. S. postoffice and courthouse in accordance with plans and specifications, copies of which are obtainable upon application. (See Machinery Wanted.)

Okla., Enid.—Institute.—State Board of Affairs has plans by R. W. Shaw, Enid, for 2 buildings at Oklahoma Institute for Feeble-Minded; 41x90 ft. and 48x90 ft.; fireproof; tile roof; reinforced concrete floors; vacuum steam heat from central plant; cost \$40,000 without mechanical equipment; bids opened about July 1. (State lately noted appropriating \$50,000 for building.)

## HOSPITALS, SANATORIUMS, ETC.

Ark., Little Rock.—Board of Control of Charitable Institutions will soon advertise for bids to erect addition to hospital at Confederate Home; 40x89 ft.; to accommodate 20 patients; has \$6000 appropriation.

Fla., Quincy.—Dr. R. F. Godard contemplates erecting hospital building; cost not over \$10,000; plans not complete.

Ga., Cordele.—Cordele Sanatorium Co. (Drs. Thos. J. McArthur, J. A. Word and M. R. Smith) will erect 12-room addition to 10-room residence for sanatorium; frame construction; shingle roof; wood floors; steam heat; electric lighting; cost \$3000; bids opened June 1. (Lately noted.)

Ky., Dry Ridge.—New Carlisle Sanitarium Co. organized with \$50,000 capital stock by Drs. E. C. Eckler, John Runnaker, A. C. Blaine and others to erect 40-room sanitarium.

Ky., Henderson.—City will erect \$25,000 hospital. Address The Mayor.

Ky., Lexington.—Fayette County Tuberculosis Assn. is considering erection of sanitarium.

N. C., Sanatorium.—Dr. L. B. McBrayer, Supt. of North Carolina Sanatorium for

treatment of tuberculosis, receives bids at Guilford Hotel, Greensboro, N. C., until June 14 to erect building; separate bids for plumbing and heating in this building and heating equipment in other buildings; plans and specifications at office of Dr. McBrayer, Sanatorium, and Hook & Rogers, Archts., Charlotte, N. C.

Okla., Muskogee.—Midland Valley R. R. Co. Kaighn, Ch. Engr., will erect hospital; Dr. Sessler Hoss, general surgeon.

Tex., Beaumont.—Jefferson County Commissioners will erect building for insane patients; Babin & Beck, Archts., Beaumont.

## HOTELS

Okla., Jennings.—Musselshell Hotel Co., Muskogee, has plans by J. N. Ruggles, Tulsa, to erect hotel; 60x75 ft.; 30 rooms; brick and frame; tar and gravel roof; wood floors; probably gas stoves; wiring and piping for gas; cost \$8000; day labor; construction begun. Address M. S. Musselshell, Jennings. (Lately noted.)

Tex., Galveston.—Steve Sgitovich is reported to erect 5-story hotel at 25th and Mechanic Sts.; fireproof; cost about \$70,000. (Lately noted under Stores.)

Va., Virginia Beach.—Manhattan Construction Co., New York, will build hotel to replace Princess Anne Hotel; plans by Marvin & Davis, 303 5th Ave., New York; reinforced concrete construction; 200 bedrooms, most of which with private baths; central section facing ocean, with 2 wings; lower floor 18 ft. above ground and surrounded by verandah 25 ft. wide; lobby 108x44 ft.; roof garden; operating company will be organized by L. D. Lewman of Manhattan Construction and S. B. Marvin of Marvin & Davis, and will issue \$300,000 bonds; architects wire Manufacturers' Record: "Hotel will be 40x300 ft.; 8 stories; fireproof."

## MISCELLANEOUS

Fla., De Land.—Hall.—A. S. Nidor, Jacksonville, will erect building for hall and stores. (See Stores.)

Fla., Jacksonville.—Clubhouse.—Armory Board, Fred G. Yerkes, Secy., Box 1224, will erect clubhouse near Jacksonville for Military Service Club of Florida; ordinary construction; cost \$10,000 to \$15,000; details not decided. Address Board.

Fla., Key West.—Clubhouse.—Key West Athletic Assn., J. Delgado, Willie Watkins and others, will erect clubhouse.

Ga., Atlanta.—Fair.—Southeastern Fair Assn. engaged R. M. Walker, 713 Grant Bldg., Atlanta, to supervise erection of buildings and other work at Lakewood Park for Southeastern Fair, and he desires bids from material men and contractors on all subcontracts. (Lately noted.)

N. C., Asheville.—Lodge.—University Club will erect lodge; bungalow type; 2 stories; lower floor surrounded by veranda; upper floor for dancing pavilion.

Okla., Medicine Park.—Home.—John X. Shepler, Chrmn. Press Home Bldg. Com. Constitution, Lawton, Okla., receives bids until June 5 to erect Oklahoma State Press Home at Medicine Park; 35x100 ft.; rock and wood construction; composition roof; wood floors; hot-water heat; plans and specifications at office of Constitution, Lawton, Okla.; cost \$9000 without mechanical equipment.

Tex., Houston.—Armory.—Houston Cavalry plans to erect armory; 50x90 ft.; 2 stories; locker-room, saddle racks, tentage storage-room, etc., on ground floor; drill floor 50x100 ft.; tan barked for use as riding ring for mounted drill.

Tex., Mineral Wells.—Pavilion.—Mineral Wells Mineral Water Co. has plans by H. Lewis Spicer, Fort Worth, for pavilion and bathhouse; 46x100 ft.; fireproof; reinforced concrete floor; cost about \$15,000; bids opened about June 1. (Noted in April.)

Tex., Waco.—Clubhouse.—Waco Maennerchor Society will erect building at Clay and 14th Sts.; cost about \$10,000; E. H. Reed, Archt., Waco; Smith & Petzgold, contractors, Waco. (Lately noted.)

## RAILWAY STATIONS, SHEDS, ETC.

Ala., Birmingham.—Southern Ry. Co., W. H. Wells, Ch. Engr. Constr., Washington, D. C., will erect 14 one-story frame buildings in Finley Yards; cost \$7700.

## SCHOOLS

D. C., Washington.—Miss Nannie Burroughs is having plans prepared by W. A. Rayfield & Co., Box 649, Birmingham, Ala., for building at Lincoln Heights for National

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Training School; 60x140 ft.; ordinary construction; asbestos roof; steam heat; electric lighting; cost \$25,000; bids opened in June. Address Architects.

Fla., Brooksville.—Hernando County School Board adopted Keewatin System of water-works in high school building, and will advertise for bids to erect annex to building; cost \$30,000.

Fla., Lake Butler.—City lets contract June 7 to erect additions to each end of school building; 21x36 ft.; 2 stories; ordinary construction; galvanized shingle roof; wood and concrete floors; cost \$7000; W. W. Simmons, Architect, McKee, Ga. Address F. G. Schell, Supt., Starke, Fla. (Lately noted.)

Fla., Larkins.—Larkins School Dist. plans to erect school; K. E. Hall, County Supt. of Education, Miami, Fla.

Fla., Port Tampa.—School Board is considering election on \$15,000 bonds for school improvements, to include finishing auditorium on second floor of Port Tampa School, improving grounds, equipping structure with fire-escapes, etc., additional room at Ballast Point, repairs to 2 other schools at Ballast Point and Port Tampa City.

Fla., Safety Harbor.—School Board is having plans prepared by Lester Avery, Clearwater, for \$10,000 school; 3 stories; brick; 6 classrooms and auditorium; manual training and domestic science department.

Fla., New Smyrna.—Trustees are having plans prepared by A. E. Lewis, 24-26 Real Estate Bldg., Miami, Fla., for school; 2 stories; concrete; fireproof; 16 classrooms; auditorium to seat 600; cost, including site and equipment, \$12,000; district votes June 15 on \$20,000 bonds.

Ga., Atlanta.—City will erect open-air annex to 10th St. School; cost \$3600. Address The Mayor.

Ga., Baconton.—Mrs. G. P. Jackson, Principal Baconton High School, will receive sketches from architects for school; brick; pine floors; electric lights; 4 recitation-rooms, library, auditorium and dressing-room; cost about \$4000.

Ga., Buchanan.—School Board, M. Ballard, Chrmn. of Comm., is having plans prepared by Jas. J. Baldwin, Anderson, S. C., for school; brick; composition roof; slate blackboards; direct and indirect steam heat; bids opened July 2.

Ga., Decatur.—Board of Education receives bids at office of Mayor until June 10 to erect school; 2 stories; brick; 150x60 ft.; cost about \$25,000; plans and specifications to be seen at office of City Clerk, office of Edwards & Sayward, Architects, 633 Candler Bldg., Atlanta, and Builders' Exchange, Atlanta; separate bids for heating. (Noted in April.)

Ga., Tallapoosa.—City votes June 30 on \$5,000 bonds to include \$25,000 for school; 12 rooms and auditorium to seat 1000; C. E. Pearce, Mayor.

Ky., Barlowville.—School Board lets contract June 5 to erect \$18,000 high school. (Lately noted.)

Ky., Woodburn.—Woodburn Consolidated School Dist. let contract at \$5180.00 to J. C. McMillan, Franklin, Ky., to erect school; 2 stories; brick veneer.

La., Bastrop.—School Directors receive bids at office of Supt. of Education until June 8 to erect 2-story-and-basement brick school; completion by Oct. 15; plans and specifications at office of W. L. Stevens, Architect, 2d floor Liverpool and London and Globe Bldg., New Orleans. (Lately noted.)

Mo., Baltimore.—City, Richard Gwyn, City Register, City Hall, receives bids until June 9 to erect School 101-111 at Caroline and Jefferson Sts.; drawings and specifications to be seen on and after May 29 at office of Building Inspector.

Mo., Warrensburg.—Regents of Missouri State Normal School receive bids until June 1 to rebuild training school building; separate bids to install heating and plumbing system and electric wiring; plans and specifications at office of Smith, Rea & Lovitt, Architects, 612-12 Finance Bldg., Kansas City. (Lately noted.)

Mo., Yates.—Yates Consolidated School Dist. voted \$8000 bonds to erect high school. Address Dist. School Trustees.

N. C., Asheville.—West Asheville and Ecma School Dist. defeated, respectively, \$35,000 and \$10,000 bonds for schools. (Lately noted.)

N. C., Barnardville.—School Dist. will erect brick State high-school building; cost \$6000; architect not selected and details not determined. Address S. R. Whitaker, Secy. Comm., Barnardville. (Lately noted.)

N. C., Jackson.—City plans to issue \$60,000 bonds for schools. Address The Mayor.

N. C., Kinston.—Caswell Training School will erect dormitory; capacity 100; cost \$14,000; also erect employees' home.

N. C., Durham.—Board of Education will rebuild Morehead grammar school building on Jackson St.; 14 classrooms, 23x30 ft.; fireproof; cost \$50,000; Architect selected May 31; details not determined; Edwin D. Pusey, Supt. (Lately noted.)

N. C., Durham.—Southern Conservatory of Music is considering erection of brick building and enlarging and improving present structure.

N. C., Elizabeth City.—City defeated \$15,000 bonds for graded schools. (Lately noted.)

N. C., Maxton.—Trustees of Carolina College plan to acquire 60-acre site adjoining college grounds and erect dormitories; plans for one prepared; erect one or two 8 or 9-room residences each year; will sell \$50,000 bonds to erect girls' dormitory at once; Rev. S. E. Mercer, Pres.

N. C., Oxford.—Granville county votes June 19 on \$30,000 bonds for schools; B. I. Breedlove, Chrmn. County Commrs. (Lately noted.)

Okla., Clinton.—Board of Education, P. G. Newkirk, Secy., opens bids June 8 to erect school building; 105x69 ft.; 2 stories and basement; reinforced concrete floors; J. O. Parr, Architect, Oklahoma City. (City lately noted voting \$35,000 bonds.)

Okla., Bristow.—School Board is considering election on bonds to erect school.

Okla., Drumright.—City is considering election on \$60,000 bonds to erect high school; auditorium to seat 1000; domestic science, manual-training equipment, etc.

Okla., Enid.—Board of Education has plans by R. W. Shaw, Enid, for Ward school; fireproof; gravel roof; reinforced concrete floors; steam-heating plant to cost \$1500; bids opened about June 20; cost \$17,000 without mechanical equipment. (Lately noted.)

Okla., Okeene.—W. A. Richardson, Clerk of School Board, receives bids until June 7 to erect 2-story-and-basement school according to plans by J. O. Parr, Architect, Oklahoma City. (Lately noted.)

Okla., Okmulgee.—Board of Education will erect addition to ward school building in Ward 4; bids opened June 1 to erect, also for heating and plumbing; Smith, Rea & Lovitt, Architects, 612-12 Finance Bldg., Kansas City. Address A. F. Boone, Clerk of Board.

Okla., Ramona.—Board of Education receives bids until June 23 to erect 2-story brick building for manual training and gymnasium; plans and specifications at office of O. Neville, Clerk of Board, Ramona, and Walton Everman, Architect, Bartlesville, Okla.

Okla., Supply.—Supply School Dist. has plans by F. D. Rixie & Co., Walters Bldg., Wichita, Kans., for school; 62x64 ft.; metal roof; wood floor; steam heat \$1000; bids opened in June. (Lately noted to vote bonds.)

Okla., Yale.—Board of Education, W. M. Watson, Chrmn., lets contract June 19 to erect school building; 60x80 ft.; mill construction; asbestos roof; steam heat; electric lighting; cost \$15,000; Stewart & Wilderson, Architects, Oklahoma City.

S. C., Boiling Springs.—Trustees are having plans prepared by S. P. Tinsley, Anderson, S. C., for school building; cost \$7000.

S. C., Columbia.—Building Com. of Trustees, Columbia City Schools, receives bids until June 10 to erect addition to Logan School on Elmwood Ave.; plans and specifications at office of Wilson & Sompayrac, Architects, 1404 Palmetto Bldg., Columbia. (Lately noted.)

S. C., Florence.—City votes June 30 on \$52,000 bonds to erect school; W. R. Barringer, Mayor.

S. C., Greenwood.—City is considering election of \$5,000 bonds for schools. Address The Mayor.

S. C., Orangeburg.—City voted \$30,000 bonds to erect high school. Address The Mayor. (Lately noted.)

Tenn., Cleveland.—Centenary College will expend \$30,000 for improvements; is considering 2 plans: (1) addition of 24 rooms by erection of third story to 2 main wings; (2) erection of new building or another wing to present structure.

Tenn., Harriman.—School Board plans to erect high school.

Tex., Belton.—Prairie View School Dist. defeated \$5000 bonds to erect school. (Lately noted.)

Tex., Cleburne.—West Liberty School Dist.

will erect home for teachers. Address Dist. School Trustees.

Tex., Columbus.—Columbus Independent School Dist. receives bids until June 7 to remodel and repair school; John Hastedt, Pres. School Board.

Tex., Corpus Christi.—Corpus Christi School Dist. voted \$19,000 bonds for school improvements. Address Dist. School Trustees. (Previously noted.)

Tex., Dallas.—Board of Education receives bids until June 15 to erect high school as follows: (1) General work, except plumbing, sewerage and gasfitting, heating, ventilating and electric work; (2) plumbing, sewerage and gasfitting; (3) heating and ventilating; (4) electric work; plans and specifications at office of Wm. B. Ittner, Architect, Board of Education Bldg., St. Louis; Board of Education, Municipal Bldg., Dallas, and Builders' Exchange, Memphis, Tenn.; structure to be fireproof; composition roof; concrete floors; fan system of heating. (Lately noted.)

Tex., Merkel.—Independent School Dist. will erect school building; 3 stories; 20 rooms; ordinary construction; tar and gravel roof; wood floors; electric lighting; cost \$20,000; hot-blast heating, \$1200; Architect not selected and other details not determined. Address Thos. Johnson, Merkel. (Lately noted.)

Tex., Nacogdoches.—Nacogdoches Independent School Dist. will erect high-school building, 2 stories, and 1 or 2 ward school buildings; metal roof; total cost \$60,000; bids opened in about 60 days; address C. A. Hodges, Nacogdoches. (Lately noted to vote bonds.)

Tex., Norion.—Runnels county voted bonds in districts as follows: Content, \$2500; Morton, \$5000; Truitt and Long Branch combined as Harmony school, \$2500; Bell, \$2500. Address County Commrs., Ballinger, Tex. (Other bond issues lately noted.)

Tex., Palestine.—City will erect school building on Ave. A; fireproof; concrete floors; cost \$85,000. Address The Mayor. (Lately noted considering election on \$100,000 bonds.)

Tex., Petrolia.—Field & Clarkson, Architects, 517 Kemp & Kell Bldg., Wichita Falls, Tex., receive bids until June 8 to erect 6-room brick addition to public school; 3 stories; 35x60 ft.; brick and wood; metal shingle roof; cost \$10,000 without mechanical equipment.

Tex., Sweetwater.—City votes June 10 on \$10,000 school improvement bonds. Address The Mayor.

Tex., Vinton.—Vinton School Dist. votes June 8 on \$5000 bonds for school. Address School Trustees.

Tex., Wharton.—Wharton Independent School Dist. will call election on bonds to erect high school. Address Dist. School Trustees. (Lately noted to have defeated bond issue.)

Va., Charlottesville.—Pi Kappa Alpha Fraternity of University of Virginia will erect building in Preston Heights; 3 stories and basement; frontage 87 ft.

Va., Danville.—Trustees acquired site at Bradley Rd. and N. Main St. for proposed Northside school.

Va., Gate City.—Shoemaker College will erect addition to college; cost about \$15,000.

Va., Lynchburg.—McLaughlin & Johnson, Architects, Suite 601 People's Bank Bldg., Lynchburg, receive bids until June 8 to erect school at Court and 11th Sts. (Previously noted.)

Va., Staunton.—School Board receives bids at office of T. J. Collins & Son, Architects, Staunton, until June 7 to erect 2 colored schools; plans and specifications at office of architects.

Va., Stuarts Draft.—School Board of South River Dist. receives bids at office of T. J. Collins & Son, Architects, Staunton, Va., until June 7 for 8-room school in South River Dist.; plans and specifications at office of architects.

W. Va., Fulton (P. O. Wheeling).—Board of Education, A. C. Wagener, Clerk, Fulton, Wheeling, W. Va., will erect school building according to plans by Geo. S. Mooney, 621 Schullbach Bldg., Wheeling; bids opened June 1.

W. Va., Wheeling.—Frank Stanton, Clerk of Board of Education, receives plans until June 14 for school on Wheeling Island; 2 stories above basement, to contain 16 to 18 rooms and auditorium to seat 500; no excavation for basement; heating and ventilating system in separate building; entire cost complete not to exceed \$100,000.

## STORES

Ala., Birmingham.—J. W. Cooke, Maben, Miss., will erect building at 1923 3d Ave.; 3 stories; 25x140 ft.; pressed brick and Bedford limestone; plate glass, marble and tile front; cost about \$18,000; Ben Price, Architect, Birmingham.

Ala., Tuscaloosa.—L. Phillipson will erect business block.

Ala., Tuscaloosa.—R. H. Little will erect block of stores; white enamel brick, white enamel terra-cotta, marble, plate and prism glass front; asbestos roof; metal frame and wire-glass windows and doors on unexposed sides; cost \$30,000; F. J. Ortling, Architect, Tuscaloosa; will soon let contract. (Lately noted.)

Ark., Newport.—Normann Wolff and C. G. Henry are reported, to erect buildings on site of burned Planters' Hotel.

Fla., De Land.—A. S. Nidor, Jacksonville, opens bids June 10 to erect building for stores and hall; 34x55 ft.; ordinary construction; tin roof; wood floors; cost \$4000; Francis M. Miller, Architect, Box 201, De Land; lately noted; address owner; architect wants prices on structural and ornamental ironwork, metal ceilings, show windows, etc. (See Machinery Wanted.)

Fla., Kenansville.—Phillips Bros. are reported to erect business building; 2 stories; brick.

Fla., Sarasota.—Dr. Joseph Halton will erect 2-story brick store and office building to replace burned structure; 18x40 ft.

Fla., Tampa.—Fred James, Tampa, is preparing plans to remodel building on Franklin St. to be occupied by New York and Tampa Department Stores; 30,000 sq. ft. floor space.

Ga., Chatsworth.—Dr. W. H. Wilson and Dr. J. B. Garrett, both of Etowah, Tenn., will erect business building; lower floors for stores; upper floor, offices.

Ky., Louisville.—Chas. Bensinger will erect frame store at 1606 S. 18th St.; cost \$2900.

Md., Baltimore.—E. Baron has plans by L. Schoenlein, 2217 E. Baltimore St., Baltimore, for store and dwelling at 231-3 S. Hughes St.; 3 stories; 26x30 ft.; brick; first floor tile; floors above, Georgia pine; hot-water heat; electric light; cost \$7000; bidders are L. Schoenlein & Son, 2217 E. Baltimore St., and J. Henry Smith, 1435 Light St., both of Baltimore; bids opened June 1.

Md., Baltimore.—Walter Scott has plans by Wm. O. Sparklin and Geo. S. Childs, Law Bldg., Baltimore, for store building on St. Paul St. between Mt. Royal Ave. and Preston St.; 110x122.6 ft.; 2 stories; 4 store spaces; fireproof; brick and terra-cotta front; composition roof; concrete floor; steam heat; electric light; bids due June 9; bidders are Jos. Schamberger, 2122 E. Baltimore St.; J. Henry Smith, 1435 Light St.; B. F. Bennett Building Co., 123 S. Howard St.; Consolidated Engineering Co., 243 Calvert Bldg.; Richardson & Williams, Equitable Bldg.; West Construction Co., Knickerbocker Bldg.; Singer-Pence Co., 600 Equitable Bldg.; Morrow Bros., 1291 Fidelity Bldg.; Price Concrete Construction Co., 225 St. Paul St.; Cogswell-Koether Co., 406 Park Ave.; all of Baltimore.

Miss., Clarksdale.—John Small will erect 2-story business building.

Miss., Greenville.—Henry K. Fisher will erect business building.

Mo., Kansas City.—E. P. and J. F. Moriarity, 1508 Grand Ave., has plans by McKeenle & Trask, Kansas City, for store building at Grand Ave. and Gilliam Rd.; 70x117 ft.; 6 floors and basement; fireproof; composition roof; cement floor construction; electric elevator; cost \$100,000; open bids early in June; excavation begun. Address owners. (Lately noted.)

Mo., Springfield.—N. Gosney will erect 3-story stone and reinforced concrete building at St. Louis and Jefferson Sts., to cost \$65,000.

N. C., Henderson.—Jas. S. Poythlers will erect building for stores and apartments or opera-house. (See Theaters.)

N. C., Kinston.—Mrs. Alice Hunter will erect store and office building; 4 stories; concrete and red pressed brick.

Okla., Oklahoma City.—Patterson & Hoffman will expend \$4000 to remodel interior of building at 200 W. Main St.

Okla., Tulsa.—Stebbins, Eysenbach & Giddings are reported to erect business building 50x80 ft.; also reported to erect additional story to 1-story structure.

Tenn., Johnson City.—B. P. O. E. No. 825 will erect store and lodge building. (See Association and Fraternal.)



Tenn., Memphis.—Joe Mazula will expend \$4000 to construct show windows, front, etc., in building at 161-63 N. Main St.

Tenn., Morristown.—C. V. Taylor will erect 2-story brick store building; 40x75 ft.; metal roof; cost about \$6000.

Tenn., Murfreesboro.—E. D. Cannon will erect store building; 2 stories; terra-cotta; cost \$9000; Hart & Gardner, Archts., Nashville.

Tenn., Nashville.—Nashville Property Co. will erect store and office building on Church St.; brick; Hart & Gardner, Archts., Nashville.

Tex., Beaumont.—Barden Electric Co., Houston, will erect 3-story brick business building at Pearl and Wall Sts.

Tex., Bronson.—W. W. Meadow will erect mercantile building; 2 stories.

Tex., Brownwood.—R. S. Boyson will erect mercantile building.

Tex., Brownwood.—J. A. Austin is preparing plans for building on Baker St.; brick; 120x100 ft.; 1 story.

Tex., Dallas.—A. W. Walker will erect business building near Southern Methodist University.

Tex., Texas City.—W. D. Thompson is reported to erect brick building at 6th and 7th Aves.; 2 or 3 stories; 21-in. walls; 50x110 ft.; electrical equipment.

Va., Norfolk.—D. Pender Grocery Co. will erect store building at Colley Ave. and Bolsevain; ordinary construction; gravel roof; cement floors; gas radiators; electric lighting; Jas. W. Lee, Archt., 408 Seaboard Bank Bldg., Norfolk; bids opened May 31. (Lately noted.)

Va., Norfolk.—Paul-Gale-Greenwood Co., Inc., is reported to expend about \$3000 for improvements to store, including installation of elevator, soundproof booths for victrolas, etc.

Va., Richmond.—John Steinbrecher will erect store at 415 W. Broad St.; cost \$19,100.

Va., Richmond.—Mrs. Mary P. Cameron will expend \$8000 to repair brick stores and dwelling at 600 1/2 E. Main St.

W. Va., Bluefield.—M. G. Witten and others are reported to erect building on Bland St.

W. Va., Huntington.—S. S. Kresge Co., Detroit, Mich., is having plans prepared by W. B. Smith, Huntington, to remodel store building at 3d Ave. and 10th St.; 40x160 ft.; mill construction; wood floors; steam heat; date of opening bids not determined.

## THEATERS

Ga., Atlanta.—Frank A. Montgomery, H. R. Polk and others plan to erect number of moving-picture theaters in Atlanta; is erecting The Regent on Peachtree St. between North Ave. and Ponce de Leon Ave.; seating capacity 450; cost several thousand dollars; will begin erection next week on two others at Peachtree and 10th Sts. and Inman Park.

Md., Baltimore.—A. S. Brown is having plans prepared by J. C. Spedden, 1640 S. Hanover St., Baltimore, for motion-picture theater at 842-4 W. North Ave.; 30x81 ft.; brick; slag roof; cement floor; steam heat; electric light; cost about \$6000.

Mo., Kansas City.—E. J. Blunkall is reported to expend \$30,000 to \$25,000 to remodel Auditorium Theater.

N. C., Henderson.—Jas. S. Poythiers will erect building to replace opera-house and use for same purpose or stores, with apartments above; 110x55 ft.; fireproof; cost \$15,000; other details not determined. (Lately noted burned.)

N. C., Raleigh.—R. G. Allen, Louisburg, N. C., will erect building on Fayetteville St. for moving pictures; 24x150 ft.; metal roof; wood floors; cost \$45,000; equipment, \$5000; J. M. Kennedy, Archt., Raleigh. Address owner.

## WAREHOUSES

Mo., Kansas City.—J. Peltzman & Son are reported to erect addition to building at 1906 Locust St.; 3 stories and basement; brick; 25x110 ft.

N. C., Newbern.—Lucas & Lewis will erect tobacco warehouse; 160x180 ft.; brick; fireproof; roller-type doors; construction under supervision of Ed. Brock; 24,000 ft. floor space; stables in rear, 20x200 ft., to contain 68 stalls. (Lately noted.)

S. C., Sumter.—W. W. Rowland will not erect warehouse as lately reported.

Tenn., Jonesboro.—Shipley Warehouse Co. will erect warehouse.

Va., Clarksville.—Mecklenburg Farmers' Co-operative Warehouse Co. Incptd. with \$3000 capital stock; Jas. P. Taylor, Prest., Clarksville; J. C. Goode, Secy.-Treas., Boydton, Va.

## BUILDING CONTRACTS AWARDED

### APARTMENT-HOUSES

Ala., Montgomery.—D. M. Avery, Montgomery, has contract to erect apartment-house on Clayton St.; frame construction; pebble-dash; cost about \$6000.

D. C., Washington.—Davidson & Davidson let contract to John H. Nolan Construction Co., Munsey Bldg., Washington, to erect addition to apartment-house at 8 St. and Florida Ave.; 4 stories; 25x74 ft.; brick and stucco; tile roof; hot-water heat; electric light; cost \$50,000; A. H. Sonnenmann, Archt., 1334 H St. N. W., Washington. (Noted in April.)

D. C., Washington.—B. Daly let contract to August Getz, 894 D St. N. E., Washington, to remodel apartment-house at 1340-2 B St.; brick; slag roof; cost \$6000; C. A. Didden, Archt., Corcoran Bldg., Washington.

Mo., St. Louis.—G. Damhorst let contract to W. Hoffschmille, St. Louis, to erect 2-story store and apartment-house at 5009-11 N. 29th St.; cost \$7500.

N. C., Charlotte.—Mrs. Gaston Galloway let contract to remodel building for stores and apartments.

Tex., El Paso.—F. H. Todd let contract to R. E. McKee Co., 815 San Antonio St., El Paso, to erect apartment-house on Mundy Ave.; ordinary construction; composition roof; wood floors; steam heat; cost \$9000; plans by owner. Address Contractor. (R. E. McKee lately noted to erect addition to store building.)

Va., Richmond.—J. M. Buchanan let contract to erect store and flat building. (See Stores.)

W. Va., Huntington.—J. F. Holswade let contract to J. E. Berry, Huntington, to erect apartment-house at 5th Ave. and 11th St.; 2 stories and basement; 45x73 ft.; colonial style; pressed brick; cost \$15,000.

### ASSOCIATION AND FRATERNAL

Ga., Atlanta.—Marbut & Miner let contract to erect building for store, office and lodge. (See Stores.)

N. C., Wilmington.—Y. W. C. A. let contract to Morton & Cox, Wilmington, to erect gymnasium; frame; cost about \$3000; Jas. F. Gause, Jr., Archt., Wilmington.

### BANK AND OFFICE

D. C., Washington.—National Savings & Trust Co. let contract to Boyle-Robertson Construction Co., 1516 H St. N. W., Washington, to remodel and erect addition to building; new portion 50x100 ft.; fireproof; slag roof; tile floors; vacuum vapor heat; 4 electric elevators; cost \$175,000; A. P. Clark, Jr., Archt., 516 14th St. N. W., Washington. (Lately noted.)

D. C., Washington.—National Savings & Trust Co. let contract to Boyle-Robertson Construction Co., 1516 H St., Washington, to add to and remodel bank at 15th St. and New York Ave.; addition 5 stories, 50x112 ft.; old building 5 stories, 65x112 ft.; fireproof; structural steel; slag roof; hollow tile floor; steam heat; electric light; cost \$200,000; A. P. Clark, Archt., 516 14th St. N. W., Washington. (Lately noted. Contract let about year ago, but work delayed till present.)

Ga., Atlanta.—Marbut & Miner let contract to erect building for offices, lodge and store. (See Stores.)

Ga., Atlanta.—Raymond Concrete Pile Co., 140 Cedar St., Atlanta, has contract for foundation for Connally Bldg., for which Wells Bros. Co., Riggs Bldg., Washington, D. C., has general contract; cost about \$300,000; W. L. Stoddart, Archt., 9 E. 40th St., New York. (Lately noted.)

Md., Baltimore.—Seaboard Bank let contract to Edward Watters Co., 509 N. Charles St., Baltimore, to remodel building at Charles and Preston Sts. for bank and offices; 25x105 ft.; 3 stories; stone front; first floor cement and terrazo on reinforced concrete; rear addition, 30x40 ft.; brick; slag roof; cost about \$14,000; Jos. Evans Sperry, Archt., 409 Calvert Bldg., Baltimore. (Lately noted.)

Mo., St. Louis.—Ranier Realty Co., 1637 Boatmen's Bank Bldg., let contract to Jas. Stewart & Co., St. Louis, to erect building at Broadway and Locust Sts. for railroad offices; 115x135 ft.; 6 stories; fireproof; cost \$500,000; Eames & Young, Archts., St. Louis; construction begins June 10. (Lately noted.)

Okla., Tulsa.—L. K. Cone, G. K. McCullough and Vensel & Elliott let contract to E. S. Hutchinson Construction Co., Tulsa, to erect addition of 3 stories to present 3-story building at Boulder Ave. and 4th St.;

70x80 ft.; fireproof; composition roof; cost \$30,000; steam heat, \$5000; Van Auker system; city lighting; Otis elevator to cost \$2500; 2 private gymnasiums on roof; E. A. Rush & Co., Archts., 303 Bank of Commerce Bldg., Tulsa; address architects. (Lately noted.)

Tex., Dallas.—Linz Bros. let contract to H. J. Curtis, 1209 E. Main St., Dallas, to remodel building at Commerce and Martin Sts. for Federal Reserve Bank; 25x100 ft.; 5 stories and basement; fireproof; pitch and gravel roof; concrete floor construction; hot-water heat; conduit system; electric lighting; cement and prism-glass sidewalk and vault lights; electric elevators; cost \$30,000 without mechanical equipment; Mosler Safe Co., Dallas, has contract to install 3 vaults; Hubbel & Greene, Archts., Dallas. (Lately noted.)

Tex., Vernon.—Waggoner National Bank let contract to Whalen & Wood, Vernon, to alter bank building; ordinary construction; tank and gravel roof; tile and wood floors; electric lighting; cost \$14,000; steam heat, \$2000; Field & Clarkson, Archts., Wichita Falls, Tex. Address Contractors. (Lately noted.)

Va., Richmond.—Jos. Bryan estate let contract to John T. Wilson Co., Inc., 1228 Mutual Bldg., Richmond, to erect office building at 22-24 N. 9th St. and 815 E. Franklin St.; L-shaped, each wing about 30x100 ft.; 2 stories and basement; ordinary construction; slag roof; joist floor construction; steam heat; cost \$25,000 without mechanical equipment; C. W. Isbell, Archt., 1223 Mutual Bldg., Richmond. (Lately noted.)

### CHURCHES

S. C., Columbia.—Waverly Methodist Church, Rev. P. L. Gunter, pastor, let contract to H. V. Hutto, New Brookland, S. C., to erect building; 35x50 and 35x25 ft.; brick; metal roof; double wood floors; hot-air heat; electric lighting; cost \$4500; J. H. Sams, Archt., Columbia; construction begun. Address A. G. Fleming, Oak St., Columbia. (Lately noted.)

Tex., Port Arthur.—Methodist Episcopal Church let contract to McDaniel Construction Co., Port Arthur, to erect building; cost \$30,000.

Va., Virginia Beach.—Catholic Chapel of the Star of the Sea let contract to R. E. Johnson, Norfolk, to erect building; brick; slate roof; 31x58 ft.; John Kevan Peebles, Archt., Norfolk.

### CITY AND COUNTY

Ala., Huntsville.—Library.—City let contract at \$11,650 to Baxter Bros., Huntsville, to erect Carnegie library; 44x50 ft.; fireproof; composition roof; reinforced concrete floors; steam heat; electric lighting; total cost \$12,500; Edw. L. Love, Archt., Huntsville. (Lately noted.)

Ga., Thomson.—Jail.—McDuffie county let contract to Pauly Jail Building Co., St. Louis, for steel cells and cages for jail, for which J. J. Crocker, Thomson, has general contract at \$8335; also let contract to Ruth-erford & Co. (W. L. Burnside, Gen. Mgr.), Augusta, Ga., for brick.

S. C., Camden.—Library.—City let contract to A. M. Sox, 819 Calhoun St., Columbia, to erect library; 20x54.2 ft.; ordinary construction; slate roof; wood floors; cost \$5000; hot-air heat, \$175; city lighting; Wilson & Sompayrac, Archts., Columbia. (Lately noted.)

Tex., Bridgeport.—City Hall.—City let contract to Andrew Hibbs to erect city hall; 40x48 ft.; 2 stories; brick; mill construction; Evan Jones, Jr., Archt., Wichita Falls, Tex. (Lately noted.)

Tex., Ennis.—City Hall.—City let contract to Kimball & Lawson, Ennis, to erect city hall, for which foundations were constructed by day labor.

### DWELLINGS

Ala., Attalla.—R. H. Middleton let contract to R. L. Bruce, Attalla, to remodel residence.

Ark., Blytheville.—W. H. Baker let contract to Mr. Shaffer to erect residence at 705 W. Ash St.

Ark., Dardanelle.—J. E. Hall let contract to S. W. McKenzie, Dardanelle, to remodel residence; 8 rooms; cost \$2500; contractor is in market for hot-air heating plant. (See Machinery Wanted.)

Ark., Little Rock.—J. B. Bond, Jr., has plans by and let contract to J. N. Moxley,

Little Rock, to erect dwelling at 2900 Arch St.; 26x42 ft. with 10-ft. porch; frame; double floors, oak and pine; asphalt shingle roof; cost \$3000. (Lately noted.)

D. C., Washington.—Isaac T. Mann let contract to W. P. Lipscomb & Co., 1413 G St. N. W., Washington, to erect residence at 16th and O Sts.; ordinary construction; slate and tin roof; wood floors; electric lighting; cost \$50,000; hot-water heat, \$1500; let contract to John P. Knipp & Sons, 1406 H St. N. W., Washington, for cabinet work; Geo. Oakley Totten, Jr., Archt., 808 17th St., Washington. (Lately noted.)

D. C., Washington.—Anna L. Lukie let contract to R. F. Lukie & Co., 1229 Monroe St., Washington, to erect dwelling at 1300 Salatin St. N. W.; 27x35 ft.; frame; slate roof; hot-water heat; electric light; cost \$5250; H. S. Samble, Archt.

D. C., Washington.—T. C. Coleman let contract to Michael A. Weller, 816 14th St. N. W., Washington, to add to and remodel dwelling at 2021 R St. N. W.; brick; tin roof; electric light; cost \$5800; Clarke Waggoner, Archt., 1124 Connecticut Ave., Washington.

D. C., Washington.—Columbia Union Conference Assn. let contract to B. Y. Wilkinson, 7129 Piney Branch Rd., Takoma Park, Washington, to erect dwelling at 411 Cedar St. N. W.; 28x32 ft.; frame; slate roof; hot-water heat; electric light; cost \$3500.

D. C., Washington.—Henry Broadbent let contract to J. B. Gibbs, 821 12th St. N. W., Washington, to erect dwelling at 2105 G St. N. W.; 22.1x27.4 ft.; brick; slate roof; hot-water heat; electric light; cost \$4200; Kendall & Smith, Archts., Southern Bldg., Washington.

D. C., Washington.—Louise C. Putnam let contract to Skinner & Garrett, 414 Evans Bldg., Washington, to remodel dwelling at 1312 N St. N. W.; cost \$3000; plans by owner.

D. C., Washington.—Mrs. I. T. Mann let contract to W. P. Lipscomb & Co., 1405 F St. N. W., Washington, to remodel dwellings and erect garage at 1333 16th St. N. W.; stucco; hot-water heat; electric light; plumbing; cost \$34,000; Geo. Oakley Totten, Archt., 806 17th St. N. W., Washington. (Lately noted.)

D. C., Washington.—Reginald W. Gears, Woodward Bldg., let contract to O. J. Dungan, 200 Bond Bldg., Washington, to erect 11 dwellings at 1212-32 10th St. S. E.; 12.6x31 ft.; brick; slag roof; cost \$15,400; plans by owner.

D. C., Washington.—Sallie Richards let contract to Harry Miller, 100 Bowen Rd., Washington, to remodel dwelling at 209 A St. S. E.; fireproofing first floor; cost \$350; R. S. Hunt, Archt., 248 5th St. S. E., Washington.

Fla., Fort Myers.—Dr. B. P. Matheson let contract to Jones & Lamb, Arcadia, Fla., to erect residence; colonial style; 47.6x78.6 ft.; vulcanite roof; cost \$6500; F. J. Kennard, Archt., Tampa.

Fla., Jacksonville.—Wm. M. Stockton let contract to Collins & Garwood, Jacksonville, to erect residence; 2 stories; shingles; asphalt shingle roof; hardwood floors; hot-water heat; tiled baths and porches; let contract for millwork and interior trim to Campbell-Ware Co., Jacksonville; Mellen C. Greeley, The Baldwin, Jacksonville, will supervise construction.

Fla., Jacksonville.—Stockton Broome let contract to Buckland & Fitchner, St. James Bldg., Jacksonville, to erect residence; brick veneer; garage; cost \$11,000 to \$12,000; H. J. Klutho, Archt., St. James Bldg., Jacksonville. (Lately noted.)

Fla., Tampa.—Chas. H. Brown, Prest. of Tampa & Gulf Coast R. R., will erect 2 two-story apartment-houses at Oak and Highland Aves.; frame; cost \$6000; T. J. Wallace, contractor, Tampa.

Fla., Tampa.—W. G. Masters will erect two residences at Newport Ave. and Cleveland St.; 1 story; frame; cost \$4000; T. J. Wallace, contractor, Tampa.

Ga., Atlanta.—District Grand Lodge No. 18, G. U. O. of O. F., let contract to Alex. D. Hamilton, 69 Ivy St., Atlanta, to erect bungalow at 161 Ashby St.; 7 rooms; ordinary construction; cedar shingle roof; wood floors; no heating plant; electric lighting; cost \$2600; L. P. Peralay, Archt., Macon. (Lately noted.)

Md., Baltimore.—Wm. A. Schmidt, 720 Law Bldg., let contract to Seybold & Eigenbrodt, Main Ave. near Belvedere Ave., Baltimore, to erect dwelling at Hawthorne and Grand Ave.; 2 1/2 stories; 26x39 ft.; cost about \$4500.

Md., Baltimore.—Raymond S. Williams let contract to Roland Park Co., Roland Park.

## GOVERNMENT AND STATE

Fla., Pensacola—Postoffice.—Treasury Department, Jas. A. Wetmore, Acting Supervising Archt., Washington, let contract at \$23,813 to Algernon Blair, Montgomery, Ala., to enlarge and improve postoffice. (Lately noted.)

Fla., Raiford—Postoffice.—L. B. Hitch, postmaster, let contract to Rogers-Simmons Co., Raiford, to erect postoffice; completion by July 1.

Va., Front Royal—Reservation.—Constructing Quartermaster let contract to M. F. Normoyle & Sons, temporarily Roanoke, Va., after June 15, Front Royal, to erect 27 buildings on U. S. Army Reservation, including officers' quarters, stables, veterinary ward, etc.; part fireproof, part ordinary construction; alternate for tile or slate roofs; concrete and wood floors; grain elevator; construction begins about June 15; cost about \$100,000. Address Contractors. (Lately noted.)

## HOSPITALS, SANITARIUMS, ETC.

La., New Orleans.—Trustees of Charity Hospital let contract to J. A. Petty, New Orleans, to erect tuberculosis ward; 1 story; brick and concrete; composition roof; Favrot & Livaudais, Ltd., Archts., New Orleans. (Lately noted.)

Mo., St. Joseph.—Methodist Episcopal Hospital let contract to J. W. Lehr, St. Joseph, to erect hospital building; 42x162 ft.; east wing, boiler-room, 40x60 ft.; fireproof; steel frame; tile roof; steam heat; cost \$125,000; Eckel & Aldrich, Archts., St. Joseph; ready for excavation. (Previously noted.)

## HOTELS

D. C., Washington.—Volta Matthews let contract to Guy Zepp, 235 Southern Bldg., Washington, to erect hotel at 339 1st St. N. E.; 25.9x69.3 ft.; 3 stories; brick and concrete; tile and slag roof; steam heat; electric light; cost \$17,000; Clarence T. Rose, Archt., 58 Q St. N. E., Washington.

Fla., Jacksonville.—Windle Smith let contract to Boykin Construction Co. to improve Hotel Windle; changes and addition to joist floor; converting storeroom into parlor; wiring, fixtures, etc.; R. A. Benjamin, architect, Jacksonville. (Lately noted.)

Fla., Tampa.—Roy Carter let contract to remodel building for stores and hotel. (See Stores.)

Ga., Augusta.—Plaza Hotel Co. acquired second floor of Kale Bldg., adjoining hotel, and let contract to J. W. Sibert, Augusta, to connect same with hotel, adding 25 rooms, etc.; cost \$12,000; G. Lloyd Preacher, Archt., Augusta.

Tenn., Nashville.—Merchants' Hotel, M. A. Simmons, Propr., let contract to repair hotel at 4th Ave. and Broadway; ordinary construction; metal roof; wood floors; electric lighting; concrete sidewalks; cost \$900; steam heat, about \$300; plans and construction by Chas. W. Rives, Nashville. (Lately noted.)

Tenn., Nashville.—Maxwell Hotel Co. let contract to Realty Construction Co., Birmingham, Ala., to remodel building for hotel and store; 150x175 ft.; concrete and ceramic tile floors; electric lighting; cost \$30,000; steam heat, \$10,000; electric elevators, \$500; Wm. C. Weston, Archt., Birmingham, Ala.; construction begun. (Lately noted.)

Va., Petersburg.—Petersburg Investment Corp., W. C. Jackson, Pres., and R. C. Parsons, Secy.-Treas., let contract to Fulton Brick Works, Richmond, to erect hotel on W. Tabb St.; 6 stories; 120 bedrooms; fireproof; cost \$120,000; Chas. M. Robinson, Inc., Archt., Richmond; construction to begin in about 30 days. (Previously noted.)

## MISCELLANEOUS

Ga., Savannah—Settlement.—Jewish Educational Alliance, A. Shulsafer, Secy. Building Com., let contract to Olaf Otto, Savannah, to erect building; 3 stories; red brick and stone exterior; cost \$50,000 to \$75,000; H. W. Witcover, Archt., Savannah. (Previously noted.)

## SCHOOLS

Ala., Livingston.—W. L. Coston & Co., Bessemer, Ala., Gen. Contrs. to erect dormitory for State Normal School, let contract to Bessemer Fire-Brick Co., Birmingham, for hollow tile; plans by Frank Lockwood, Montgomery, call for structure 132x164 ft.; mill construction; steam heat; cost \$35,000; Bessco tile for outside walls. (Lately noted.)

Ark., Forrest City.—School Board let contract to J. E. Hollingsworth & Co., Mem-

phis, Tenn., to erect high school; fireproof; ordinary construction; 65x114 ft.; gravel roof; steam heat; electric lights; cost about \$25,000; W. C. Lester, Archt., Memphis. (Lately noted.)

D. C., Washington.—Comms. District of Columbia let contract to Chas. A. Langley, 312 12th St., Washington, to rebuild High School No. 117 at 35th and R Sts. N. W.; 200x100 ft.; fireproof; concrete roof covered with slag; concrete beams and tile floors; fans system of heating to cost \$14,000; electric lighting, \$500; Snowden Ashford, architect, District Bldg., Washington; Secy. Board of Comms., 509 District Bldg., opens bids May 29 for plumbing, plastering and painting structure. (Lately noted.)

Fla., Nocatee.—See Fla., Sebring.

Fla., Sebring.—Board of Public Instruction let contracts at \$11,680 and \$11,380, respectively, to Lutz & Hawk, Fort Meade, Fla., to erect Sebring and Nocatee schools; 10 rooms and auditorium; ordinary construction; slate roofs; probably jacketed stoves; electric lights. (Lately noted.)

Fla., Umatilla.—Trustees Umatilla School Dist., W. T. Kennedy, Secy., let contract to Osborn & Yancey, Umatilla, to erect school; 59x74 ft.; mill construction; galvanized-iron shingle and sheet-asbestos roof; wood floor; Ideal steam-heating system, \$790; electric light; cost \$578.75; W. H. Carr, Archt., Leesburg, Fla.; address C. Z. Osborn, Umatilla. (Lately noted.)

Ga., Atlanta.—Board of Education let contract to W. H. Passmore, Atlanta, to erect school building on Metropolitan Ave.; 8 rooms; ordinary construction; slate roof; wood floors; cost \$15,000; Battle & Barill, Archts., Atlanta. (Lately noted.)

Ga., Conyers.—Little & Phillips, Cordele, Ga., general contractors to erect school building, let contract for plumbing to I. D. Morgan & Co., Tifton, Ga.; plans by W. A. Edwards, Candler Bldg., Atlanta, call for building to cost about \$30,000; mechanical blast system of heat. (Previously noted.)

Md., Towson.—Maryland State Normal School Building Com. let contract to Morrow Bros., Fidelity Bldg., Baltimore, to erect cupola on administration building; brick; 64 ft. high; clock near top; cost \$14,000; Parker, Thomas & Rice, Archts., Union Trust Bldg., Baltimore.

Md., Wolfsville.—School Board let contract to Elmer Brandenburg to erect school; 3 rooms; basement, recreation-rooms, etc.; cost \$4000 to \$5000.

Miss., Hickory.—School Board let contract to Standard Construction Co., Meridian, Miss., to erect school building; has bond issue for \$10,000.

Miss., Laurel.—City let contract to C. O. Eure, Hattiesburg, Miss., to erect school building on 5th St.; 10 rooms; ordinary construction; tile roof; pine floors; heat pipes extended from another building; cost \$21,270; P. J. Krouse, Archt., Meridian, Miss. Address S. F. Gardiner, City Clerk, Laurel. (Lately noted.)

Mo., Kansas City.—Board of Education let contract to Arthur G. Harper, 1339 Indiana Ave., Kansas City, to erect addition to Greenwood School at 27 Monroe Ave.; 42x80 ft.; fireproof; graveled concrete roof; reinforced concrete floor; cost \$25,000; heating \$7000; Chas. A. Smith, Archt., 601 Finance Bldg., Kansas City. (Lately noted.)

Mo., University City.—Mrs. M. Louise Thomas let contract to Heman Construction Co., Title Guaranty Bldg., St. Louis, to erect 3-story school building; T. P. Barnett Co., Archt., Central National Bank Bldg., St. Louis.

Okla., Cushing.—Board of Education, F. P. Harman, Pres., and John Foster, Secy., let contract to Lucas & Van Meter, Oklahoma City, to erect 2 school buildings; each 60x70 ft.; fireproof and ordinary construction; pitch and gravel roof; concrete and yellow pine floors; direct-indirect steam heat; cost \$33,300; J. O. Parr, Archt., Oklahoma City. (Lately noted.)

Okla., Hitchcock.—School Dist. No. 29 let contract to C. H. Myers, Enid, Okla., to erect building; 24x72.8 ft.; asphalt roof; 1 cement, 2 wood floors; cost \$4800; A. A. Crowell, Archt., Murdock Bldg., Wichita, Kans. Address Clyde V. Loy, Hitchcock. (Lately noted to vote bonds.)

S. C., Charleston.—Charleston Engineering & Contracting Co., general contractor to remodel and erect addition to Crafts School, let following sub-contracts: Building material, Carolina Portland Cement Co.; mill work, L. Wetherhorn & Son; lumber, Halsey Lumber Co.; roofing, plumbing, etc., R. M. Masters, all of Charleston; iron work, Chattanooga Roofing & Foundry Co., Chattanooga; plans by David B. Hyer, Charleston,

call for 18 classrooms; ordinary construction; tin roof; wood floors; hot-water heat; cost \$27,000. (Lately noted.)

Tenn., Chattanooga.—School Board let contract at \$18,254 to Jannaway & Harper, Chattanooga, to erect Clifton Hills school; also let contract at \$2300 for heating plant and \$800 for plumbing; plans by DeSable & Adams, Chattanooga, call for 12-room and auditorium structure; fireproof construction. (Lately noted.)

Tex., Berclair.—School Board let contract to Steward & Van Every, Berclair, to erect school; 2 stories; 40x60 ft.; cost about \$5000. (Previously noted.)

Tex., Denton.—School Board let contract at \$39,444 to A. W. Flynt, Fort Worth, to erect high school; plumbing contract let at \$450 to M. B. Whitlock & Co., Denton; heating, \$3185, to J. W. Morris, Fort Worth.

Tex., Dallas.—Southern Methodist University, Rev. R. S. Hyer, Pres., let contract to Holmboe Construction Co., Oklahoma City, to erect 3 dormitories; each to accommodate about 50 students; 2 stories; two, 38x90 ft.; one, 38x112 ft.; classic style; about 30 rooms; completion by Sept. 15; also let contract to Winslett-Eldredge Co., Dallas, to connect Dallas Hall and Woman's building. (Lately noted.)

Tex., San Antonio.—School Board let contract to Weston & Kroeger, 310 Sadle St., San Antonio, to erect school at Lopez and Colorado Sts.; 65x85 ft.; fireproof; composition roof; reinforced concrete underfill with wood floor; combination ventilating and steam heating plant; cost \$32,000 without mechanical equipment; Leo M. P. Dielman, Archt., San Antonio; practically all material bought. (Lately noted.)

Tex., Temple.—City let contract to Balanz & Jones, Temple, to erect 2 grammar schools; 4 rooms; brick; 30x70 ft.; 2 stories; fireproof; composition roofs; reinforced concrete floors with wood surface; no heating or lighting; cost \$10,000 each; J. H. Davis, Archt., Temple. (Lately noted.)

W. Va., Salem.—Salem College let contract to Holbert & Spedden Co., Fairmont, W. Va., to erect building; 74x103 ft.; 3 stories; brick and stone; ordinary construction; Barrett specification roof; wood floors; cost \$30,000; Stephen W. Ford, Archt., Clarksburg, W. Va.

## STORES

Fla., Fort White.—J. M. Sikes let contract to A. J. Green, Fort White, to erect building; 38x55 ft.; 1 story; tin roof; concrete floor.

Fla., Jacksonville.—Marcus Conant let contract to Buckland & Fitchner, St. James Bldg., Jacksonville, to erect building; cost \$10,000; Mark & Sheftall, Archts., Clark Bldg., Jacksonville.

Fla., Ybor City, Ind. Sta., Tampa.—B. M. Buchman let contract to J. A. Foxworth, 3009 Morgan St., Tampa, to erect building in Ybor City; brick; plate-glass front; Barrett specification roof; cost \$10,000; Bonfoey & Elliott, Archts., Petteway Bldg., Tampa.

Fla., Tampa.—Roy Carter let contract to J. E. Long & Co., 225 American National Bank Bldg., Tampa, to remodel building according to plans by Grimmer & Toussaint, 604 Citizens' Bank Bldg., Tampa; lower floor for stores; upper floor, hotel; cost \$5000 to \$8000.

Ga., Atlanta.—Marbut & Minor, East Atlanta, let contract to Kalb & McCauley, Peters Bldg., Atlanta, to erect building for grocery store, lodge and offices; irregular dimensions; 50x80x50x56 ft.; ordinary construction; tar and gravel roof; city lighting; no heating plant; cost \$12,000; Chas. H. Hopson, Archt., Henley Bldg., Atlanta. (Lately noted.)

Ga., Waynesboro.—J. J. Reynolds let contract to J. B. Mobley, Waynesboro, to erect addition to store building.

Miss., Schlater.—E. E. Jameson let contract to Burkes Construction Co., Hattiesburg, Miss., to rebuild burned store and dwelling; 35x113 ft.; ordinary construction; Barrett specification roof supplied by J. F. Bobbitt & Co., Greenwood, Miss.; mosaic tile floors; electric lighting; concrete sidewalks; cost \$7000; G. G. Mitchell, Archt., Greenwood. Address Contractor. (Lately noted.)

Miss., Schlater.—Schlater Bros. let contract to Burkes Construction Co., Hattiesburg, Miss., to rebuild burned store; 50x77 ft.; 2 stories, 25 ft. each; ordinary construction; Barrett specification roof; concrete floors; concrete sidewalks; cost \$4200; G. G. Mitchell, Archt., Greenwood, Miss. Address Contractor. (Lately noted.)

Mo., Kansas City.—Dr. F. P. Soden, 619 Ridge Bldg., let contract to Aiken & Thayer, 501 Shukert Bldg., Kansas City, for concrete



and brick work on store building at 12th and Locust Sts.; 44x80 ft.; reinforced concrete; composition roof; cement floor; cost \$40,000; steam heat \$1000; electric lighting \$400; electric elevator about \$1800; granite sidewalks; Harry J. Simons, Archt., 601 Shukert Bldg., Kansas City; contract also let for heating, terra-cotta, excavation, etc.; construction begun.

Mo., St. Louis.—G. Damhorst let contract to erect store and apartment-house. (See Apartment-Houses.)

N. C., Charlotte.—Mrs. Gaston Galloway let contract to remodel old Law Bldg.; 2 stories; lower floor for stores; upper floor for apartments.

S. C., Gaffney.—Dr. V. H. and A. S. Lipscomb let contract to Wright & Spurgeon, Gaffney, to erect business building. (Lately noted.)

S. C., Gaffney.—J. N. Nesbitt let contract to Builders' Supply Co., Gaffney, to erect store building on Limestone St.; 21x100 ft.; 2 stories, 14 and 10 ft.; ordinary construction; tin roof; double wood floors; cost \$4000 without mechanical equipment; materials purchased; Wheeler & Stern, Archts., Charlotte, N. C.

S. C., Gaffney.—T. H. Westrope let contract to L. Baker, Gaffney, to erect 1-story brick building. (Lately noted.)

Tenn., Nashville.—Maxwell Hotel Co. let contract to remodel building for hotel and store. (See Hotels.)

Va., Richmond.—J. M. Buchanan let contract to J. A. Foxworth, Richmond, to erect 2-story store and flat building at 1910 7th Ave.; cost \$7000.

Va., Lynchburg.—S. S. Kresge Co., Detroit, Mich., let contract to A. W. Lang Co., Lawrence, Mass., to remodel building for store; 48x132 ft.; 4½ stories; ordinary construction; Barrett's specification tar and slag roof; lighting, \$1000; remodel heating plant, \$500; remodel elevators, \$200. Address A. W. Lang Co., Lynchburg. (Previously noted.)

### THEATERS

Ala., Montgomery.—Hix & Graveley Cigar Co. is reported to have let contract to Jas. Hodgson, Montgomery, to remodel Empress Theater for moving-picture theater; cost several thousand dollars. (Lately noted.)

La., Algiers.—Foto Realty & Amusement Co., 2809 N. Robertson St., New Orleans, let contract to A. Roupich, McDonoghville, La., to erect theater; 62x116 ft.; ordinary construction; rubberoid roof; tile and wood floor; cost \$18,000; steam heat, \$200; W. R. Burke, Archt., Gravier and Barrou Sts., New Orleans; construction begun; address architect. (Lately noted.)

### WAREHOUSES

Ga., Atlanta.—Exposition Cotton Mills let contract to Griffin Construction Co., Atlanta, for \$12,000 building for cloth storage warehouse; 100x80 ft.; 2 stories and basement; brick mill construction with steel sash; elevator.

Ga., Atlanta.—Union Seed & Fertilizer Co. let contract to Griffin Construction Co., Atlanta, to erect seedhouses; cost \$10,000.

Ga., Atlanta.—H. G. Hastings will erect 3-story warehouse in rear of Mitchell St.; cost about \$12,000; C. W. Bernhardt, contractor, Atlanta.

Md., Baltimore.—Horstmeier Lumber Co. let contract to J. J. Moylan, 117 E. Center St., Baltimore, to erect warehouse at 301 E. Falls Ave.; 2 stories; 51x75 ft.; brick; slag roof; steam heat; cost \$8000; J. K. Stack, Archt., 12 E. Lexington St., Baltimore. (Lately noted under Bank and Office.)

R. R. Co. does not have any new construction under consideration at present. This denies a late press report. H. P. Edwards is Gen. Supt.

S. C., Charleston.—Southern Ry. has made arrangements to grade its proposed storage yard in connection with its coal-handling plant. Work is light. Tracklaying by company force. W. H. Wells, Washington, D. C., is Ch. Engr. of Constr.

Tex., Bowie.—Oklahoma & Texas Southern Ry. Co. has 20 mi. graded between Bowie and Montague, Tex., and plans to build from Bowie via Forestburg and Krum to Denton, Tex., about 50 mi. W. A. Squires, Henrietta, Tex., may give further information.

Va., Radford.—Contract for the Radford Southern Ry. from Radford to Willis, Va., 25 mi., is reported practically let to Williams Bros. Construction Co., Roanoke, Va. J. L. Vaughan of Radford is Pres. of the railroad company.

W. Va., Martinsburg.—Williamsport, Nesle & Martinsburg R. R. Co., according to a local report, has completed survey from the MacDonald farm to Cumbo, 6 mi., and will soon request bids for construction. John Carmichael, Hagerstown, Md., is Pres.

W. Va., Beckley.—Plans to build an electric railway from Fayette Station on the Chesapeake & Ohio Ry. to Beckley, about 35 mi., have been submitted to the Raleigh County Business Men's Association by H. G. Scott of Charleston, W. Va., Gen. Mgr. of the Virginian Power Co. Route via Mount Hope, Oak Hill, Glen Jean, Fayetteville and other points. C. L. Beckner, T. E. Bibb and Ernest Chilson of Beckley were appointed a committee on the plan.

W. Va., Parkersburg.—Construction is expected to begin soon on the proposed Charleston, Parkersburg & Northern Ry. In view of published announcement that Eastern capital has agreed to finance construction, which, with equipment, will cost \$3,000,000. Line 75 mi. long from Charleston to Parkersburg. Officers elected as follows: Henry H. Archer, Pres.; K. B. Stephenson, V.-P., both of Parkersburg; George Page, Secy., and Treas., Baltimore, Md.; other directors being P. J. Prodel and George House of Baltimore and W. J. Landin of Norfolk, Va.

### STREET RAILWAYS

Mo., Kansas City.—Ordinances have been adopted by the City Council authorizing the Metropolitan Street Ry. Co. to build its proposed extensions on Broadway, Prospect Ave., Woodland Ave., 24th St., 31st St. and 12th St. John M. Egan is Pres.

## MACHINERY, PROPOSALS AND SUPPLIES WANTED

Manufacturers and others in need of machinery or supplies of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery or supplies needed we will make their wants known free of cost, and in this way secure the attention of manufacturers and dealers throughout the country. The Manufacturers Record has received during the week the following particulars as to machinery and supplies wanted.

### "WANTS"

**Acid Phonique, etc.**—Edmond Mangan, 64 Rue de Vaugirard, Paris, France.—Acid phonique cristalline 34-35 degree ice; acid phonique 39-40 degree or 40-41 degree snow; aniline; aniline colors; tinctures, especially blue and black; magnesium (preferred in powder) immediately, in large quantities, 5000 kilos each minimum; lowest prices in francs at quay, French port; if offers are cabled will reply by cable, especially for acid phonique and magnesium.

**Agricultural Implements.**—See Woodworking Machinery, etc.—Dino J. Papayianopoulos & Co.

**Air Receivers.**—Eagle Pipe Supply Co., 29 Howard St., New York.—Two second-hand air receivers of 100-ft. capacity and one of 75 to 100-ft. capacity.

**Automobiles.**—Dino J. Papayianopoulos & Co., Patras, Greece.—Catalogues and prices on automobiles and auto sprinklers, etc. (See Woodworking Machinery, etc.)

**Bank Equipment.**—Hary County Bank, Chas. I. Kidd, Prest., Hartwell, Ga.—Prices on bank equipment.

**Bathroom Fixtures.**—M. C. S., care Manufacturers Record.—Catalogues and prices on bathroom fixtures and accessories.

**Boilers.**—See Electrical Equipment, etc.—Interstate Milling Co.

**Boiler.**—Trustees Elderslie M. E. Church, Rev. L. A. Thirkield, Prest., Mt. Washington, Md.—Prices and information on sectional steam boiler for \$8000 church building.

**Boiler.**—W. J. Norris, Box 103, Wilmington, N. C.—Boiler, 100 H. P. capacity. (See Sawmill Equipment.)

**Boiler Equipment.**—Bureau of Yards and Docks, Navy Dept., Washington, D. C.—Bids until July 3 for erecting extension to building and furnishing and installing new equipment in boiler plant at Naval Proving Ground, Indian Head, Md.; plans and specifications on application to Bureau.

**Brick.**—Baltimore (Md.). Board of Awards.—Bids until June 9 to furnish 300,000 manhole brick to Sewerage Com.; specifications obtainable from Sewerage Com., 904 American Bldg.

**Brick.**—See Building Material.

**Bricks.**—Office Comms., District of Columbia, Washington, D. C.—Bids until June 2 to furnish 230,000 common red bricks for Central High School building; specifications and proposal forms obtainable from Purchasing Officer, D. C., Room 330, Dist Bldg.

**Bridge Construction.**—Maryland State Roads Com., O. E. Weller, Chrmn., 601 Garrett Bldg., Baltimore.—Bids until June 15 to build reinforced concrete bridge (two 98-ft. arch spans) across Patuxent River, along Baltimore and Washington Blvd., Baltimore and Howard counties; contract No. O-5-B; specifications and plans obtainable on application.

**Bridge Construction.**—J. J. Vernon, Spartanburg County Supvr., Spartanburg, S. C., and W. H. Willimon, Greenville County Supvr., Greenville, S. C.—Bids until June 15 to construct 38-ft. timber bridge on Enoree River, at 'te known as Ford's Bridge, about 5 mi. from Reidville; plans and specifications on file with Supvr. at Spartanburg or Greenville.

**Bridge Construction.**—Smyth County Comms., Marion, Va.—Bids until June 7 to construct 37-ft. steel span, 2 mi. from Groseclose; 12-ft. roadway; 12-ton loading; according to standing plan "L-16" of Virginia State Highway Com.; plans and specifications with County Clerk, Marion, and State Highway Com., Richmond; further information furnished by G. P. Coleman, State Highway Commr., Richmond.

**Building Material.**—H. H. Anderson, Lumberton, N. C.—Prices on brick, cement, sash, doors and hardware for \$40,000 hotel.

**Building Material.**—Dr. R. F. Godard, Quincy, Fla.—Prices on building material and mill work for \$5000 residence.

**Candy Machinery.**—W. G. Baldwin & Co., 310 S. Jefferson St., Roanoke, Va.—Candy beaters, stoves, refrigerators, motors, electrical fixtures, marble slabs.

**Canning Machinery.**—P. A. Reavis Co., Dallas, Tex.—Canning equipment. (See Creamery, etc.)

**Cars, etc.**—Navy Dept., Bureau of Supplies and Accounts, Washington, D. C.—Bids until June 15 for 2 box cars, 40,000 lbs. capacity, delivery Norfolk, schedule 8375; 4 steel, flat, wooden floor cars, 60,000 lbs. capacity, delivery Washington, schedule 8390; 100 plumbago or graphite crucibles, delivery Washington, schedule 8376; 36 pressed steel wheelbarrows, delivery Washington, schedule 8385.

**Cement.**—See Building Material.

**Conveying Machinery.**—Leroy Park, Greenville, Tenn.—Bids on aerial tramway or other equipment to convey 5000 tons iron ore monthly (also small tonnage manganese and zinc) to railway 6 mi. distant.

**Cement (Portland).**—Quartermaster's Office, U. S. A., New Orleans, La.—Bids until June 10 to furnish 12,000 bbls. Portland cement for Hawaiian Islands.

**Coal.**—Directors Maryland Penitentiary, John F. Leonard, Warden, Baltimore, Md.—Bids until June 9 to furnish 2500 tons soft coal; specifications obtainable from Warden.

**Coal.**—U. S. Engr. Office, H. W. Stickle, Maj., Corps of Engrs., Wilmington, N. C.—Bids until June 28 on about 13,000 tons bituminous coal; further information on application.

**Crane (Locomotive).**—W. D. Haden, Box 175, Kinston, N. C.—Machinery to manufacture crates, such as used by bottling companies.

**Crane Machinery.**—Ellis Carriage Works, Galveston, Tex. (Contr. for shell and gravel road work in Brazoria county).—Second-hand locomotive crane, 10 tons capacity; also dump bins. (See Dump Bins.)

**Creamery, etc.**—P. A. Reavis Co., Dallas, Tex.—Small creamery and canning outfit.

**Crucibles.**—See Cars, etc.—Navy Dept., Washington, D. C.

**Desks (School).**—Merritt & Smith, Clinton, N. C.—Addresses of manufacturers of school desks.

**Drainage.**—Comms. Rum Neck Drainage Dist., Holly Hill, S. C.—Will let contract June 22 to construct canal about 5 mi. long, 3 to 10 ft. bottom width, 2 ft. 2 in. to 4 ft. deep; 14,740 cu. yds. excavation; completion within 6 months of contract date; M. L. Ireland, Dr. S. P. Wells and M. E. Schuler, Comms.

**Dredge Buckets.**—Johnson & Co., West Palm Beach, Fla.—2½ and 3-yd. clam-shell bucket.

**Dump Bins.**—W. D. Haden, Galveston, Tex.—Dump bins, to be attached to side of coal cars, for unloading cars. (See Crane.)

**Electric Motors.**—Kater & Ankersmit, 39 Avenue de Villiers, Paris, France.—Agencies for electric motors; ½ to 100 H. P.; 3-phase; to meet demands in north of France after German army retires; prepared to give guarantees for carrying large stock on commission; will send representative to United States to complete arrangements.

**Electrical Equipment, etc.**—Interstate Milling Co., Charlotte, N. C.—Prices on engines, boilers and electrical equipment.

**Engines.**—See Electrical Equipment, etc.—Interstate Milling Co.

**Electrical Equipment.**—Navy Dept., Bureau of Supplies and Accounts, Washington, D. C.—Bids until June 15 for 2350 500,000 and 1,000,000 C. M. cable, delivery Philadelphia, schedule 8382; induction motor, delivery Washington, schedule 8387; 10 shunt-wound D. C. motors, delivery Newport, schedule 8387; 2 200 K. W. turbo-generating sets and 1 set finished plans, delivery Philadelphia, schedule 8386; 4 switchboards and spare parts, delivery Boston and Philadelphia, schedule 8385; 120 K. W. oil-cooled transformer, delivery Washington, schedule 8377.

**Electrical Fixtures.**—See Candy Machinery.—W. G. Baldwin & Co.

**Electrical Supplies.**—C. J. Brasselle, Lakeland, Fla.—Catalogue and dealers' prices

an electrical supplies, fixtures, wire, D. C. motors and generators, A. C. motors and generators, novelties and all supplies for electrical installations.

**Electric Wiring.**—Dept. of Justice, Office of Supt. of Prisons, F. H. Duchay, Washington, D. C.—Bids until June 18 to furnish at U. S. Penitentiary, Atlanta, Ga., electric wiring for bath, laundry and tailor shop building; copies of specifications obtainable.

**Elevator (Grain).**—S. Burgis, Gainesville, Fla.—Small grain elevator.

**Elevator.**—L. C. Seymour, 5117 Kenwood Ave., Chicago, Ill.—Second-hand electric elevators of various capacities and makes; state condition and prices.

**Engine.**—McGowan-Bennett Mercantile Co., Georgiana, Ala.—80 H. P. balance valve engine, with 8x16-in. pulley, for 175 R. P. M.; second-hand.

**Engine (Hoisting).**—John G. Duncan Co., 208 W. Jackson Ave., Knoxville, Tenn.—Dealer's price on second-hand 8x10 American double-cylinder triple drum hoisting engine.

**Engine.**—W. J. Norris, Box 103, Wilmington, N. C.—50 H. P. engine. (See Sawmill Equipment.)

**Engines (Internal Combustion).**—Layton-Childs Mining Co., W. A. Childs, Prest.-Mgr., Yellville, Ark.—Catalogues and prices on internal combustion engines.

**Engines (Oil).**—C. J. Brasselle, Lakeland, Fla.—Catalogues and prices, to distributors, on oil engines.

**Extractors (Dye).**—Athens Hosiery Mills, Athens, Ga.—Prices on belt-driven whippers or extractors; capacity 50 to 100 lbs. stockings; second-hand will do.

**Fans (Shaft).**—H. N. Sharpe, Swansea, S. C.—Correspondence with companies installing fans operated by shaft, with gasoline engine.

**Flour Mills, etc.**—Basil Dracopolis, 8 Strada Brasila, Galatz, Roumania.—To correspond with American manufacturers of flour mills, clothing, shoes, etc.

**Foundry (Brass) Equipment.**—Ammons' Automatic Fire Alarm System, J. B. Ammons, Gen. Mgr., Union National Bank Bldg., Houston, Tex.—Machinery, such as used in brass factories.

**Glass Works.**—Ammons' Automatic Fire Alarm System, J. B. Ammons, Gen. Mgr., Union National Bank Bldg., Houston, Tex.—Will need "glass works" of special manufacture.

**Glove (Canvas) Machinery.**—C. S. Britt, 7th and Grace Sts., Wilmington, N. C.—Names and addresses of manufacturers of canvas glove machinery.

**Hammocks.**—J. J. Blow, importer and manufacturer, 101 High Holborn, London, W. C., England.—Interested in ordinary garden hammocks, well made and cheap; send catalogues and prices.

**Hardware.**—See Building Material.

**Hardware, etc.**—Arkansas Light & Power Co., Arkadelphia, Ark.—Hardware, wire, pole line, etc.

**Heaters (Fireplace, Hot-Air).**—Bonwell & Son, Archts., St. Petersburg, Fla.—Catalogues and prices on fireplace hot-air heaters.

**Heating Plant.**—S. W. McKenzie, Dardanelle, Ark.—Prices on hot-air heating plant for residence.

**Heating Plant, etc.**—Wiley & Wilson, Commit. Engrs., People's Bank Bldg., Lynchburg, Va.—Bids until June 8 for heating and ventilating equipment for city school building to be erected.

**Heating Plant (Steam).**—H. H. Anderson, Lumberton, N. C.—Prices on steam-heating equipment for \$40,000 hotel.

**Hooks (Spring Brass or Steel).**—Albert Strange, 521-First National Bank Bldg., Birmingham, Ala.—Addresses of manufacturers with view to placing order (for client) for manufacture of patented key-ring hook in lots of 1500 to 2000 per month; hook to be made of spring brass or steel, 5 in. over all and 2½ in. when folded; material 9-16-in. wide and 1-32-in. thick; also wishes to place order for similar amounts of another hook.

**Hose.**—Navy Dept., Bureau of Supplies and Accounts, Washington, D. C.—Bids until June 15 for 1000 ft. rubber garden hose, delivery Charleston, schedule 8394.

**Ice-Cream Freezers.**—J. J. Blow, importer and manufacturer, 104 High Holborn, London, W. C., England.—Catalogues and prices on (cheap) ice-cream freezers.

**Leather and Hides, etc.**—Bensusan, Sides & Co., Salonique, Greece.—Samples and prices from American manufacturers on shoe blacking, 30 to 40-lb. packages; rect-

angular pieces of leather for making belting (state size of pieces); cowhides of good quality, 2 to 3 millimeters thick, weight 3 to 4 kilos each, good condition and without cuts; hide should be sent for examination; for delivery c. l. f. at Salonique.

**Ice Machinery.**—Planters' Oil Mill & Gin Co., Kosciusko, Miss.—New or second-hand 25-ton ice plant.

**Ice Machinery.**—Denton Ice & Fuel Co. (Green & Merrick), Denton, Md.—Receiving prices on 10-ton ice plant equipment.

**Ice Plants.**—Southern Orchard Co., Knoxville, Tenn.—Names and addresses of ice plant manufacturers.

**Iron Gates.**—J. Hunter Hopkins, Brunswick, Ga.—To correspond with manufacturers of fence iron gates.

**Knitting Machinery.**—C. S. Britt, Wilmington, N. C.—Addresses of manufacturers of knitting mill machinery.

**Lighting Fixtures.**—Wake County Commrs., John A. Mills, Chrmn., Raleigh, N. C.—Bids until June 8 for lighting fixtures for courthouse.

**Lime Equipment.**—Dean Lime & Crushed Stone Co., Bon Aqua, Tenn.—Catalogues and prices on limekilns and hydrating machinery.

**Lumber.**—Navy Dept., Bureau of Supplies and Accounts, Washington, D. C.—Bids until June 15 for 15,000 ft. birch lumber, delivery Norfolk, schedule 8380.

**Machine Tools, etc.**—Navy Dept., Bureau of Supplies and Accounts, Washington, D. C.—Bids until June 15 for 2 hydraulic jib-lifting cranes, delivery Norfolk, schedule 8364; 4 evaporators and 1 set finished plans, delivery Philadelphia, schedule 8366; 2 vertical turret lathes, delivery Newport, schedule 8361; 2 vertical spindle milling machines, delivery Newport, schedule 8383; 3 screw type-testing machine, delivery Annapolis, schedule 8365; mattress tufting machine and spare knives, delivery Philadelphia, schedule 8363; centrifugal pump, delivery Annapolis, schedule 8378; single-acting plunger pump, delivery Washington, schedule 8360; miscellaneous washers, extractors and spare parts, delivery Portsmouth, N. H., schedule 8367.

**Manufactures.**—Valdemar Petersen, Hotel White Hall, Bloomsbury Square, London, W. C., England.—To represent American manufacturers for trade in Australia; Mr. Petersen is of New South Wales and will return to that city; he secured some agencies during recent tour in United States; principally commission basis.

**Manufactured Novelties.**—Clarke & Co., agents and importers, 21 Bond St., Sydney, N. S. W., Australia.—Data, catalogues and prices on attractive, useful or interesting articles which appeal to the general public.

**Manufactured Products.**—Nogueira & Garriga, manufacturers' agents, 109 Alfandega St. (P. O. Box 1812), Rio de Janeiro, Brazil.—Interested in American goods, especially novelties and light articles for all trades.

**Metals.**—Navy Dept., Bureau of Supplies and Accounts, Washington, D. C.—Bids until June 15 for 18,000-lb. crane ladle, delivery Washington, schedule 8376; 50,000 lbs. railroad track rails with angle splice bars No. 1, delivery Norfolk, schedule 8382.

**Metals.**—Ammons' Automatic Fire Alarm System, J. B. Ammons, Gen. Mgr., Union National Bank Bldg., Houston, Tex.—Metals manufactured on thermostatic principle.

**Metal Ceilings.**—Francis M. Miller, Box 201, Deland, Fla.—Prices on metal ceilings for \$4000 store building.

**Metal Flume Construction.**—Cameron County Irrigation Dist. No. 1, Harlingen, Tex.—Bids until June 19 to construct 2 metal flumes over Arroyo Colorado; plans and specifications on file at office of Dist.; contractor to accept bonds in payment.

**Metal-working (Brass, Steel and Iron) Machinery.**—Hijos de Alfonso A. Lize, Bruch 31, Barcelona, Spain.—Interested in machinery for making all kinds of brass and steel wire articles as screws, screw rings, hooks, hinges, thread guides (pig-tail shape), wood screws, etc., all of iron wire; fish hooks of steel wire; spinning or twisting travelers of flat or round brass and steel wire; various styles spiral springs of steel wire, with or without buckles at ends; iron wire hair and safety pins; brass or steel wire ordinary pins; steel wire sewing needles; haberdashery, such as small hooks, etc.

**Meters (Water).**—Comms. Dist. of Columbia, 509 Dist. Bldg., Washington, D. C.—Bids until June 14 to furnish 7000 ½-in. water meters for Water Dept.; specifications

and proposal forms obtainable from Purchasing Officer, Room 320, District Bldg.

**Meters (Water).**—L. Pons, 10 Rue de Maistre, Paris, France.—Names and addresses of manufacturers of water meters, such as used in largest cities.

**Mill Work.**—See Building Material.

**Mortising Machine.**—Merritt F. Smith, Clinton, N. C.—Circulars of mortising machine.

**Motors.**—See Woodworking Machinery, etc.—Dino J. Papayanopoulos & Co.

**Motors.**—See Candy Machinery. — W. G. Baldwin & Co.

**Ornamental Iron.**—Francis M. Miller, Box 201, Deland, Fla.—Prices on ornamental iron work on \$4000 store building.

**Painting, etc.**—Marion Lucas, Custodian U. S. Postoffice and Courthouse, Savannah, Ga.—Bids until June 15 for repairs and painting at postoffice and courthouse.

**Paper.**—Emile Barbier, 31 Rue Laugier (Av. Niel), Paris, France.—Samples and prices (cheapest possible) on all kinds of blank papers; could handle (sales assured) about 5000 tons paper for newspapers in rolls weight, 48 grams per sq. meter; breadth of paper, ½ in. breadth of 38 centimeters, ¾ in. breadth of 1 met. 75; shipments of about 1000 tons monthly; also interested in other paper for newspapers and in printing and writing paper.

**Paving.**—City of Asheville, N. C., J. E. Rankin, Mayor.—Bids until June 10 to construct 5000 sq. yds. concrete sidewalks, concrete curb and gutter and retaining walls, including necessary grading; specifications and plans obtainable from Secy.-Treas. or City Engr.

**Paving.**—Kimble County Commrs.' Court, J. B. Randolph, County Judge, Junction, Tex.—Bids until June 14 to grade and gravel 7 mi. of streets in Junction.

**Paving.**—B. A. Wise, City Mgr., Charleston, W. Va.—Bids until June 7 to grade, pave and curb Pennsylvania Ave. from Magazine Bridge to Mary St. and 4th Ave. from Stockton to Patrick St.; specifications and plans on file with City Clerk and J. M. Clark, City Engr.

**Paving.**—Street Committee, W. E. Chambers, Purchasing Agent, City Hall, Atlanta, Ga.—Bids until June 4 to pave Alabama St. from Central Ave. to Broad St. with granite blocks; specifications obtainable from Purchasing Agent.

**Paving.**—City of Maysville, Ky., J. Wesley Lee, Mayor.—Bids until June 7 to reconstruct with brick paving and cement curbing sections of East 2d, Bridge, 3d, Sutton and Market Sts.; 38,000 sq. yds. brick paving on 6-in. concrete base and 19,500 lb. ft. 6-in. concrete curb; work divided into 7 sections, each to be bid on separately; plans, specifications and proposal forms obtainable from W. L. Glazier, City Engr., York St. and Court Place, Newport, Ky., and from City Clerk at Maysville; J. N. Foster, Chrmn., Internal Improvement Committee.

**Paving.**—City of Richmond, Va., Chas. E. Bolling, City Engr., City Hall.—Bids until June 8 for 2 in. bituminous macadam paving on 6-in. concrete base and for graveling streets; specifications and proposal forms on application.

**Paving.**—Town Council, R. W. Pipkin, Town Mgr., Morganton, N. C.—Bids until June 7 to construct 7000 sq. yds. concrete paving and 5000 lb. ft. concrete curb; contractor to furnish material; bids also to be made, town to furnish stone, cement, sand and expansion joints; specifications furnished for \$1.

**Pipe.**—See Woodworking Machinery, etc.—Dino J. Papayanopoulos & Co.

**Pipe, etc.**—Navy Dept., Bureau of Supplies and Accounts, Washington, D. C.—Bids until June 15 for 3000 ft. 6-in. wrought pipe screwed couplings, delivery Washington, schedule 8385; 81 brass globe valves, delivery Washington, schedule 8386; 4 1½ in. hydraulic valves, delivery Washington, schedule 8385.

**Piping, etc.**—Arkansas Light & Power Co., Arkadelphia, Ark.—3000 ft. 4-in. and 6-in. grade B cast-iron pipe, few hydrants, etc.; for use at Eldorado, Ark.

**Piping.**—Geo. E. Lum Machine & Supply Co., Birmingham, Ala.—Prices on 3500 ft. 2½-in. wrought-iron pipe with good threads and couplings; second-hand; f. o. b. cars Dadeville, Ala.

**Plumbing Supplies.**—See Bathroom Fixtures.

**Polishers (Shoe, Electric).**—Luther Ellison, care of Chamber of Commerce, Lancaster, S. C.—Addresses of handlers of automatic electric shoe-shine devices.

**Poles.**—See Hardware, etc.—Arkansas Light & Power Co.

**Presses (Baling).**—L. C. Seymour, 5117 Kenwood Ave., Chicago, Ill.—Second-hand steel power baling presses; Minnick preferred; state condition and prices.

**Printing Machinery.**—See Woodworking Machinery, etc.—Dino J. Papayanopoulos & Co.

**Pumping Plant, etc.**—Office Constructing Quartermaster, Fort Sam Houston, Tex.—Bids until June 11 to move steel tank and construct pumphouse and pumping plant at old target range near Fort Sam Houston; information on application.

**Refrigerators.**—W. G. Baldwin & Co., 310 S. Jefferson St., Roanoke, Va.—Refrigerators. (See Candy Machinery.)

**Road Construction.**—Lewis County Fiscal Court, O. P. Politt, Clerk, Vanceburg, Ky.—Bids until June 5 to improve first section Salt Lick Rd. from Vanceburg to Valley, 7 mi.; plans and specifications on file with County Clerk.

**Road Construction.**—Maryland State Roads Com., O. E. Weller, Chrmn., 601 Garrett Bldg., Baltimore, Md.—Bids until June 22 to build 3 sections State highway, about 4.32 mi.; Contract No. B 22, Baltimore county, 1.04 mi. resurfacing; contract 042, Cecil county, 2.08 mi. concrete or macadam; contract 0265, Caroline and Talbot counties, 1 mi. macadam; specifications and blanks obtainable from Com.

**Road Construction.**—Volusia County Commrs., M. M. Bond, Chrmn., Deland, Fla.—Bids until June 30 on construction 17.47 mi. roads in First Commrs.' Dist. and 39.56 mi. in Second Commrs.' Dist. for determining type and character, cost, etc., of proposed roads; bids received on following surfacing: Brick flat, sand filler; brick flat, ground filler; sheet asphalt; asphaltic concrete; modified asphalt; asphaltic macadam and shell; type of surfacing to be decided after bids are submitted; plans and specifications at office of County Clerk, Saml. D. Jordan, and Engr., J. B. McCrary Co., 1408 Third National Bank Bldg., Atlanta, Ga., and 507 Atlantic National Bank Bldg., Jacksonville, Fla.

**Road Construction.**—Montgomery County Commrs., Richard T. White, Jr., Pres., Rockville, Md.—Bids until June 15 to construct 1.38 mi. State-aid road along Clarksburg Rd. between Burdette and Boyd; bids to be made on blank forms furnished by State Roads Com., 601 Garrett Bldg., Baltimore; plans can be seen and forms of specification and contract obtained for \$1 at office State Roads Com.

**Road Construction.**—Tangipahoa Parish Police Jury, H. P. Mitchell, Pres., Amite, La.—Bids until June 15 to construct about 8¼ mi. road east and west of Amite; about 30,000 yds. dirt; blank applications furnished by John Vining, Amite, or J. E. Kerrigan, Engr., Hammond, La.

**Road Machinery.**—H. F. Davis, County Engr., Williamsburg, Ky.—Prices on general road machinery.

**Roofing.**—W. J. Norris, Box 103, Wilmington, N. C.—Roofing. (See Sawmill Equipment.)

**Roofing Slate.**—Bonniwell & Son, architects, St. Petersburg, Fla.—Samples, catalogues and prices on green roofing slate.

**Rubber Tire Machinery.**—E. J. Archibald, 210 Dan Wagoner Bldg., Fort Worth, Tex.—Machine for double-threading rubber tires.

**Sacks (Ore).**—Layton-Childs Mining Co., W. A. Childs, Pres.-Mgr., Yellville, Ark.—Catalogues and prices on ore sacks.

**Sash and Doors.**—See Building Material.

**Saw.**—Chas. A. McLean, 412 Citizens' Bank Bldg., Norfolk, Va.—Mershon hand saw, 54 in., of standard perfected of New Standard type.

**Sawmill Equipment.**—W. J. Norris, Box 103, Wilmington, N. C.—Prices on edger, 2 saw trimmer, roofing, 100 H. P. boiler and 30 H. P. engine.

**Sewers and Disposal Plant.**—Committee on Sewers, L. F. Owen, Chrmn., Winston-Salem, N. C.—Bids until June 15 to build reinforced concrete sewage-disposal plant and extend main sewer lines thereto; 2½ mi. 24 and 30-in. pipe sewers in shallow trench; for information, specifications, etc., address J. L. Ludlow, Engr., Winston-Salem.

**Sewer Construction.**—City of Maplewood, Mo., M. F. O'Brien, Clerk.—Open bids June 9 to construct 7-ft. tunnel sewer through solid rock; S. W. Shinkel, Engr.

**Show Windows.**—Francis M. Miller, Box 201, Deland, Fla.—Prices on show windows for \$4000 store building.

**Spreading Machinery.**—Dean Lime & Crushed Stone Co., Bon Aqua, Tenn.—Cata-



logues and prices on machinery for spreading ground limestone, lime and ground phosphates.

**Staining and Polishing Equipment.**—Levering & Levering, Wilmington, N. C.—Addresses of manufacturers of or dealers in staining and polishing outfits for broom handles, window poles, etc., for daily capacity 5000 handles.

**Steel (Bridge) Draw.**—Tampa & Gulf Coast R. R. Co., C. H. Lutz, Gen. Mgr., Ybor City, Fla.—Bids on 50 ft. draw, comprising lift steel span for 50 ft. clear channel for navigation; for wood bridge across Clearwater Bay to Indian Beach, near Anona; O. N. Axtel, Engr., Tampa, Fla.

**Steel and Iron.**—G. T. Gantos, 37 Rue de Thermes, Athens, Greece.—Interested in steel and iron products; view to agencies on commission.

**Structural Iron.**—Francis M. Miller, Box 24, Deland, Fla.—Prices on structural iron work for \$4000 store building.

**Stains (Wood).**—Bonniwell & Son, Archts., St. Petersburg, Fla.—Samples, catalogues and prices on wood stains for interior pine work.

**Stoves.**—See Candy Machinery. — W. G. Baldwin & Co.

**Stump Puller.**—Southern Orchard Co., Knoxville, Tenn.—Stump puller operated by hand power.

**Textile Machinery.**—Hijos de Alfonso A. Lizo, Bruch 31, Barcelona, Spain.—Interested, view to representation, in textile machines and spare pieces for same, making specialties of cotton mills, looms and weaving machinery.

**Tramway (Aerial).**—See Conveying Machinery.

**Water-works.**—City of Butler, Mo., J. F. Smith, Clerk.—Bids until June 22 to construct filter plant, furnish pumps, motors, etc., for water-works improvements; bidders invited to be present; work to include construction of brick power-house, coagulating basin, filter plant, pipes, valves, etc., for connecting pumps; 5 mi. transmission line; switchboard, station wiring, motor-generator set, etc.; filter plant equipment; 2 oil engines, each direct-connected to 75 K. W. generator; switchboard equipment and 100 K. W. motor-generator set; two 350 G. P. M. pumps and two 40 H. P. motors and one 250 G. P. M. and 20 H. P. motor; alternate bids on following boiler-room materials and construction: 150 H. P. feed water heater, boiler feed pump, steam piping, steel smokestack, etc.; two oil engines, direct-connected to 100 K. W. generators; two Corliss engines, direct-connected to 75 K. W. generators, and two Corliss engines, direct-connected to 100 K. W. generators; plans and specifications with City Clerk and at office of Harper & Stiles, Engrs., 914 Grand Ave. Temple, Kansas City, Mo.

**Wheelbarrows.**—See Cars, etc.—Navy Dept., Washington, D. C.

**Wire.**—See Hardware, etc.—Arkansas Light & Power Co.

**Wire, etc.**—Ammons' Automatic Fire Alarm System, J. B. Ammons, Gen. Mgr., Union National Bank Bldg., Houston, Tex.—Fuse, telephone wire, etc.

**Wire (Brass, Steel and Iron) Machinery.**—Hijos de Alfonso A. Lizo, Bruch 31, Barcelona, Spain.—Correspondence with manufacturers of flat, round and square brass, steel and iron wires for making various articles. (See Metal-working (Brass, Steel and Iron) Machinery.)

**Wool (Knitting).**—Bunge Freres, Le Havre, France.—Information and prices on manufactured wool for hand and machine knitting.

**Woodworking Machinery, etc.**—Dino J. Papayianopoulos & Co., Patras, Greece.—Interested, view to representation, in printing machines, woodworking machines, shoe machines, hatmakers' equipment and machinery, gas and petroleum motors, horizontal pipe, agricultural implements and machinery, automobiles and auto sprinklers, etc. Send catalogues and prices.

In the first 22 days of this month 14,400 tons of phosphate rock was sent abroad from the elevators at Tampa. These shipments were nearly double the quantity shipped in the first four months of the year, and indicate better possibilities in the trade.

The Coosa Pipe Co. at Gadsden, Ala., has begun shipment of soil pipe to South America made to meet special demands.

## FINANCIAL NEWS

The MANUFACTURERS RECORD invites information about Southern financial matters, items of news about new institutions, dividends declared, securities to be issued, openings for new banks, and general discussions of financial subjects bearing upon Southern matters.

### FINANCIAL CORPORATIONS

Ala., Lapine.—First National Bank has made application to organize; capital \$25,000. Organizers, W. L. Grisette, M. McRee, J. L. Tucker, A. J. Jones, J. S. Taylor and others. D. C. Washington.—A new bank capitalized at \$100,000 is being organized by William F. Thyson, Secy., Commercial Fire Insurance Co., and others.

Fla., Jacksonville.—Standard Investment Co., capital \$35,000, is organized with A. G. Hartridge, Pres.; B. B. MacDonald, V. P.; Joseph R. Dunn, Secy.-Treas.

Fla., Jacksonville.—The Southeastern Trust Co. has made application for charter; capital \$200,000; surplus \$50,000; organizers, Charles R. Rudisill, A. E. Adamson, J. S. Peterson and Walter J. Bryson, Jacksonville, Fla., and R. C. Middleton, Crescent City, Fla.

Fla., Miami.—Florida Bond & Mortgage Co. has filed articles of incorporation; capital \$500,000; organizers, Theodore G. Houser, Lillie S. Houser and Mitchell D. Price.

Ga., Hartwell.—The Hart County Bank, which is to be chartered with \$25,000 capital, expects to begin business about Sept. 1; Chas. I. Kidd, Pres.; Julian B. McCurry, V. P.; Frank T. Kidd, Cash.

Md., Baltimore.—Baltimore Commercial Bank is being organized with \$500,000 capital and \$100,000 surplus by local parties. Asa G. Candler of Atlanta, Ga., is reported interested. The new bank will be located in the Coca-Cola Bldg., Pratt St. and Market Pl.

Md., Brunswick.—Bank of Brunswick has filed articles of incorporation; capital \$25,000; incorporators, W. B. Washington and J. D. Brown of Lovettsville, Va.; F. L. Spitzer and J. R. Karn of Brunswick.

N. C., Ahoskie.—Guarantee Company of Ahoskie, authorized capital \$100,000, with \$1000 paid in, is organized to conduct an insurance agency; W. L. Curtis, Pres.; J. O. Carter, Secy.-Treas. Business has begun.

N. C., Durham.—Durham Realty & Insurance Co., capital \$125,000, incorporated by T. C. Worth, Alphonsus Cobb and J. N. Lipscomb.

Tex., Alice.—The Alice State Bank has changed its name to the Alice State Bank & Trust Co. and increased capital from \$75,000 to \$100,000.

Tex., San Antonio.—The Ilibertia Mortgage Co. Incptd.; capital \$50,000; T. L. Conroy, Pres., and J. E. Tanfer, Secy. and Treas. Business has begun.

Tex., Texline.—First National Bank of Texline has made application to organize; capital \$25,000; organizers, G. G. Wright, Jr., Johnson Allen, G. C. Dawning, C. S. Bingham and J. E. McAvoy.

Va., City Point.—Bank of City Point has filed articles of incorporation. B. B. Jones will be Secy. Business is to begin about July 15.

W. Va., Ridgeley.—The People's Bank is organized by R. A. Radcliff and others.

### NEW SECURITIES

Ala., Scottsboro.—Election is to be held to vote on \$5000 water-works bonds. Address The Mayor.

Ala., Troy.—Election is to be held June 15 to vote on \$38,000 5 per cent. 30-year \$1000 refunding bonds. Lawrence E. Gellerstedt is Mayor.

Ark., Dardanelle.—Municipal bonds will soon be offered. Address The Mayor.

Fla., Arcadia.—Election will probably be held this summer to vote on bonds for streets and other municipal improvements. Address The Mayor.

Fla., Bartow.—\$25,000 5 per cent. 20-year bonds Fort Meade Special School Dist. No. 4, Polk county, were sold to Sidney Spitzer & Co., Toledo, O.

Fla., Bradentown.—Election is to be held in Manatee county June 22 to vote on \$60,000 6 per cent. 20-year bonds, dated July 1, 1915; \$50,000 for the purpose of funding outstanding indebtedness and \$10,000 for the county poor farm. Address Board of County Commrs., M. G. Rushton, Chrmn.

Fla., Clearwater.—\$5000 Seminole Dist., Pinellas county, school bonds are voted. Dixie M. Hollins is Secy. Board of Public Instruction.

Fla., DeLand.—All bids received May 10 for \$12,500 5 per cent. \$500 bonds Special Tax School Dist. No. 14, St. Lucie county, were rejected. C. R. M. Sheppard is Secy. Board of Public Instruction, Volusia county.

Fla., Green Cove Springs.—\$500,000 Clay county road bonds defeated.

Fla., Port St. Joe.—Bids will be received until 9 A. M. June 5 by T. H. Stone, Chrmn. Board of Trustees, for \$10,000 6 per cent. 10-year improvement bonds.

Fla., Port Tampa.—Steps are being taken to call an election to vote on \$15,000 Port Tampa School Dist., Hillsborough county, bonds. Wm. Schneider is Chrmn. Board of Public Instruction, Hillsborough county, at Tampa, Fla.

Fla., South Jacksonville.—\$150,000 of municipal improvement bonds have been voted. Address Board of Bond Trustees.

Fla., Tampa.—Dispatch to Manufacturers Record says \$250,000 5 per cent. 20-50-year \$1000 sewer bonds are voted. Date for opening bids not yet decided. Address Board of Public Works. D. B. McKay is Mayor.

Fla., Tampa.—Board of Public Instruction, Hillsborough county, has authorized the issuing of \$650 6 per cent. \$50 bonds Special Tax School Dist. No. 47, Hillsborough county. Wm. Schneider is Chrmn. of Board.

Fla., West Palm Beach.—\$750,000 road-construction and \$50,000 refunding 5½ per cent. 5-30-year Palm Beach county bonds are voted; denomination \$500 and \$1000; dated July 1, 1915; date for opening bids not yet decided. Geo. O. Butler is Clerk Palm Beach County.

Ga., Decatur.—\$25,000 school, \$7000 water and \$18,000 sewer 5 per cent. 30-year \$1000 bonds have been purchased by J. H. Hillsman & Co., Atlanta, Ga., at 101. G. H. Gibbs is City Clerk.

Ga., Rome.—\$75,000 4 per cent. municipal building and auditorium bonds have been purchased by J. H. Hillsman & Co., Atlanta, Ga.

Ga., Tallapoosa.—Election to vote on \$35,000 water-works, \$25,000 school and \$5000 sewerage 5 per cent. bonds was held May 30. Address The Mayor. C. E. Pearce is Mayor and L. G. Groover Clerk.

Ga., Quitman.—Election ordered for May 29 to vote on \$40,000 5 per cent. 40-year Brooks county road and bridge bonds was called off. W. R. Knight is County Clerk.

Ga., Richland.—Bids will be received until 8 P. M. June 7 by P. C. Brown, Clerk and Treas., for \$15,000 5 per cent. \$1000 sewer bonds. Maturity 1926 to 1940, inclusive.

Ga., Toccoa.—\$35,000 5 per cent. \$1000 electric-light plant bonds were voted May 25; dated Jan. 1, 1916; maturing serially until Jan., 1914. Bonds will be offered as soon as validated under Georgia laws. Claude Bond is Mayor and H. J. Cox City Clerk.

Ky., Carlisle.—All bids received May 25 for \$125,000 5 per cent. 5-25-year \$500 Nicholas county road bonds, dated May 15, 1915, rejected and new bids were opened June 2. John F. Sugg is County Clerk.

Ky., Madisonville.—Election called for June 5 to vote on \$300,000 Hopkins county road bonds has been called off.

Ky., Monticello.—Election is to be held July 24 to vote on \$200,000 Wayne county pike bonds. J. S. Sanduskey is County Judge.

Ky., Murray.—\$300,000 Calloway county road bonds defeated. Address County Commrs.

La., Gilbert.—\$20,000 Ward No. 2 school-building bonds are voted. Address School Board.

La., New Orleans.—\$275,000 5 per cent. drainage bonds Jefferson-Plaquemine Dist. have been purchased by Harris, Forbes & Co., New York.

La., New Orleans.—\$500,000 5 per cent. Public Belt R. R. bonds have been purchased at \$501,350 and accrued interest by the Ilibertia Bank & Trust Co., New Orleans.

Miss., Ashland.—\$5000 6 per cent. Ashland School Dist., Benton county, bonds, dated Aug. 1, 1915, were purchased by the Hanchett Bond Co., Chicago.

Miss., Boyle.—Mayor and Board of Aldermen give notice that the town proposes to issue \$7500 6 per cent. water-works bonds; denominations not less than \$100 or more than \$1000. W. A. McDill is Mayor and Robt. W. Wall, Town Clerk.

Miss., Meridian.—The \$50,000 5½ per cent. road bonds Dist. No. 1, Lauderdale county,

to be voted on June 10, have been sold. T. L. Johnson is Chrmn. Board of Supvrs., Lauderdale county.

Miss., Pascagoula.—\$17,000 6 per cent. bonds for wharves and dock are voted. Address The Mayor.

Miss., Ripley.—Board of Supervisors of Tippah county will take steps to issue \$50 of Mathis High School Dist. bonds.

Miss., Quitman.—\$15,000 Clarke County Agricultural High School bonds have been purchased by Hanchett Bond Co., Chicago.

Miss., Woodville.—Bids will be received by L. Lewis, Chancery Clerk, until June 7 for \$2500 5½ per cent. 25-year Wilkinson county road bonds.

Mo., Chilhowee.—\$6800 electric-light-plant bonds are voted. Address The Mayor.

Mo., Kirksville.—Election is to be held June 24 to vote on \$70,000 lighting-plant bonds. Address The Mayor.

Mo., Huntsville.—\$8000 Yates Consolidated School Dist., Randolph county, high-school bonds are voted and will soon be put on the market. Address Board of Trustees.

N. C., Asheville.—The following school district bonds were defeated: West Asheville, \$35,000; Emma, \$10,000.

N. C., Chapel Hill.—Bids will be received by N. W. Walker, Secy. Board of Trustees Chapel Hill Graded School Dist., until noon June 30 for \$35,000 30-year \$1000 school bonds; interest 5, 5½ and 6 per cent. Further particulars will be found in the advertising columns.

N. C., Elizabeth City.—\$15,000 graded school improvement bonds defeated.

N. C., Jackson.—Election is soon to be held to vote on \$60,000 school-building bonds. Address Board of Education.

N. C., Morehead City.—\$24,000 5½ per cent. sewer bonds, dated Mar. 1, 1915, were purchased by the Hanchett Bond Co., Chicago.

N. C., Mt. Olive.—Bids will be received until noon July 1 for \$6000 5 per cent. 20-year \$500 graded school district bonds. Address Albert S. Grady, Secy., Box 105.

N. C., Oxford.—Election will be held in Granville county June 19 to vote on \$30,000 5 per cent. 20-year school bonds. Address Board of Commrs. Granville County, B. I. Breedlove, Chrmn.

N. C., Pilot Mountain.—\$30,000 5 per cent. 30-year Pilot township road-improvement bonds are being offered at private sale; denominations \$500 and \$1000. Address W. R. Badgett, Atty. for Highway Commission.

N. C., Roxboro.—Election is to be held June 21 to vote on \$15,000 5 per cent. 30-year bonds for paying off outstanding indebtedness. J. M. O'Brian is Mayor and C. C. Cunningham Clerk.

N. C., Wilmington.—\$22,000 6 per cent. \$1000 bonds New Hanover Drainage Dist. No. 1 were purchased at par May 24 by Southern Drainage & Construction Co., Winston, N. C.

Okla., Bristow.—Election will soon be called, it is reported, to vote on school bonds. Address School Board.

Okla., Clinton.—Bids were received until 8 P. M. June 2 for \$30,000 5 per cent. 20-year school bonds. Address P. G. Newkirk, Secy. Board of Education.

Okla., Hitchcock.—\$4000 of an issue of \$5500 6 per cent. 5-20-year bonds Hitchcock Consolidated School Dist. have been purchased at par by Geo. W. and J. E. Pierson of Oklahoma City. Clyde V. Loy is Clerk.

Okla., Perry.—Bids will be received until June 7 by W. T. Faris, Clerk Noble County, for \$100,000 5 per cent. courthouse bonds.

Okla., Tulsa.—Election will probably soon be called to vote on \$100,000 sewer and \$100,000 boulevard bonds. Address The Mayor.

S. C., Anderson.—Board of Drainage Commrs., Rocky River Drainage Dist. No. 1, has given notice that it proposes to issue \$20,000 6 per cent. 25-year bonds. Address Board of Commrs., Z. C. Balletine, Chrmn.

S. C., Florence.—Election is to be held June 30 to vote on \$140,000 street, water-works, lighting and sewerage refunding, \$52,000 school, and \$40,000 paving 6 per cent. bonds. W. R. Barringer is Mayor.

S. C., Greenville.—Bids will be received until 9 P. M. June 22 for \$100,000 paving, \$25,000 sewer and \$8500 refunding 5 per cent. 30-year bonds. Address The Mayor.

S. C., Greenwood.—Petitions are being circulated asking that an election be held to vote on bonds for following purposes: \$100,000 for street improvements and \$35,000 for school building and to retire some outstanding bonds. Address The Mayor.

[For Additional Financial News, See Page 74.]

### Merchants-Mechanics National Bank

South and Water Sts., BALTIMORE, MD.  
DOUGLAS H. THOMAS, President.  
JNO. B. RAMSAY, V.-P. and Chm. Bd. of Dir.  
JOHN B. H. DUNN, Cashier.  
Capital \$2,000,000. Deposits \$21,670,000  
Surplus and Profits \$2,175,000.  
Accounts of Banks, Bankers, Corporations and Individuals solicited.  
We invite correspondence.

Edwin Warfield, President.

### Fidelity and Deposit Company of Maryland

Home Office: Baltimore

Total Assets over \$11,000,000.00.

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INCORPORATING under broad, liberal, safe and stable Delaware laws. A fully equipped department for proper organization and registration of corporations.

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TITLE DEPARTMENT examines and guarantees title to realty throughout Delaware.

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Hopkins Place, German and Liberty Sts.  
Capital, \$1,500,000.  
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A general banking business transacted.  
Special attention given to collections.

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Correspondence invited from investors wishing to sell their holdings of seasoned marketable Municipal Bonds, and from municipal officials and contractors in connection with entire new issues.

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Right on two trunk lines—half-way between Washington and Pittsburg—direct connection North with Penna. R. R.—eight cent natural gas—coal at \$1.65 per ton—electric power at one cent per K.W.H.—cheap labor—canal transportation to the coast.

There is a factory building here—main building 150'x75'—two floors—addition 40'x70' two floors—loft room—plenty of ground—six car siding on the long side—power elevator—boiler plant and shafting already installed—yard track.

**A Cheap Rent or a Cheap Buy  
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**The City Overlooked  
CUMBERLAND, MARYLAND**

27,000 population—fine water—fine schools—many other industrial opportunities.

Write us for more information and concessions.

**We Accept No Commissions  
We Offer No Bonuses**

If you knew conditions here you would be interested.

**Chamber of Commerce  
Cumberland, Maryland**

S. C., Orangeburg.—\$30,000 bonds School Dist. No. 26 are voted; interest 4½ or 5 per cent. Bids for same will be received until June 30, inclusive. W. B. Thompson is Chrmn. of Trustees of Dist.

S. C., Oswego.—\$3000 6 per cent. 20-year school bonds Oswego Dist. No. 16 are offered at private sale. Address F. W. Andrews.

S. C., Sumter.—Election will soon be held to vote on \$250,000 street-paving and sidewalk bonds. Address The Mayor.

Tenn., Bristol.—Bids will be received, it is reported, until June 29 by W. H. Lynn, Commissioner of Finance, for \$10,000 of an authorized issue of \$25,000 6 per cent. 20-year street-improvement bonds.

Tenn., Brownsville.—\$7500 of an issue of \$12,500 6 per cent. Haywood county high-school warrants have been purchased at \$57 premium by Powell, Gerard & Co., Chicago.

Tenn., Camden.—Benton county has sold \$30,000 5 per cent. 10-year courthouse bonds to Duke M. Farson & Co., Chicago, for \$29,587.

Tenn., Dandridge.—Election will soon be held to vote on \$10,000 sidewalk bonds. Address The Mayor.

Tenn., Decatur.—Election is to be held in Meigs county to vote on \$100,000 road bonds. Address County Commrs.

Tenn., Memphis.—Bids will be received until 2:30 P. M. June 17 for \$985,000 4½ per cent. refunding bonds. E. H. Crump is Mayor.

Tenn., Nashville.—City Council has voted to issue \$625,000 4½ per cent. 30-year school bonds. Address Mayor Howse.

Tex., Austin.—The Attorney-General has approved the following securities: \$15,000 5 per cent. 10-40-year bonds Road District No. 5, Waller county.

Tex., Ballinger.—\$8000 Ballinger school district bonds have been voted. These bonds were recently reported defeated. M. Kieburg is County Judge.

Tex., Beaumont.—\$230,000 of bonds are voted as follows: Wharf, dock and terminal, \$100,000; street improvements, \$85,000; sewer extension, \$39,000; incinerating plant, \$5000. Address Finance Committee.

Tex., Corpus Christi.—\$19,000 Corpus Christi Independent School Dist. bonds are voted. Address Board of Trustees.

Tex., El Paso.—Bids will be opened June 10 for \$17,000 5 per cent. 20-40-year \$1000 Ysleta School Dist., El Paso county, school-building bonds. Address County Judge at El Paso.

Tex., El Paso.—Election is to be held in Vinton Dist., El Paso county, June 8 to vote on \$5000 school district building bonds. Address County Commrs.

Tex., Gonzales.—Election is to be held in School Dist. No. 43, Gonzales county, to vote on \$4000 school bonds. Address County Commrs.

Tex., Kaufman.—No satisfactory bids were received May 21 for \$150,000 road bonds Justice Precinct No. 6, Kaufman county; interest 5 per cent. James A. Cooley is County Judge.

Tex., Kaufman.—\$300,000 5 per cent. road bonds Commrs.' Precinct. No. 3, Kaufman county, have been purchased at par and accrued interest by three banks of Terrell. James A. Cooley is County Judge.

Tex., Merkel.—School Dist. No. 14, Jefferson county, has voted \$18,000 5 per cent. 10-40-year \$1000 school bonds, dated June 1, 1915. Address Thos. Johnson.

Tex., Nacogdoches.—Election is to be called in 40 days to vote on \$60,000 5 per cent. 40-year \$1000 Nacogdoches Independent School Dist. bonds. C. A. Hodges is Secy.

Tex., Oakville.—Bids will be received until 3 P. M. June 16 for \$40,000 5½ per cent. 10-20-year bonds Road Dist. No. 4, Live Oak county. W. W. Caves is County Judge.

Tex., Pearsall.—\$7500 5 per cent. 20-year Pearsall School Dist. bonds were purchased by the Permanent School Fund.

Tex., Port Lavaca.—Election is to be held to vote on \$17,000 bonds Seadrift Special School Dist., Calhoun county. Address Board of Trustees.

Tex., Port Lavaca.—Election is to be held June 15 to vote on \$17,500 bonds Seadrift Common School Dist., Calhoun county, bonds. Address Board Trustees.

Tex., Rio Grande.—\$15,000 Rio Grande School Dist., Starr county, bonds were recently voted. Address Board of Trustees.

Va., Charlottesville.—Election is to be held

July 26 to vote on \$75,000 school bonds. Address Board of Education.

Va., Christiansburg.—Election will be held July 6 to vote on \$100,000 Christiansburg Dist. road-improvement bonds. Address Board of Trustees.

Va., Culpeper.—\$100,000 5 per cent. 34-year \$500 road bonds Cedar Mountain Dist., Culpeper county, defeated.

Va., Petersburg.—City has sold \$100,000 4½ per cent. 40-year bonds for colored public school. W. R. McKenny is Vice-Chrmn. Finance Committee.

W. Va., Charleston.—\$750,000 5 per cent. 20-year road bonds have been voted by six districts in Kanawha county and the city of Charleston. L. C. Massey is Clerk County Court.

W. Va., Fairmont.—Election is to be held June 21 to vote on \$100,000 Fairmont Dist., Marion county, road bonds. Address County Commrs.

W. Va., Huntington.—\$600,000 30-year Cabell county road bonds are voted. D. I. Smith is Commissioner.

W. Va., Parkersburg.—\$250,000 5 per cent. 10-34-year district school bonds, dated June 1, 1915, have been purchased by Hoehler, Cummins & Pruden, Chicago, Ill.

W. Va., Princeton.—Bids will be opened July 1 for \$550,000 5 per cent. 30-year \$1000 Mercer county road-improvement bonds voted May 15. Address County Court, Princeton. W. J. Lilly is Pres. at Athens, W. Va.

W. Va., Pennsboro.—Bids will be received until noon June 19 for \$30,000 4 per cent. 10-34-year Clay Dist., Ritchie county, school bonds, dated June 1, 1914. J. A. Woodell is Secy. Further particulars will be found in the advertising columns.

W. Va., Stealey Heights (P. O. Clarksburg) \$30,000 6 per cent. 1-10-year \$1000 paving bonds, dated June 1, 1915, were purchased May 23 by Union National Bank, Clarksburg, W. Va., at par. M. B. Newlon is Town Recorder.

## FINANCIAL NOTES

The Missouri Bankers' Association has elected officers for the next year as follows: Pres., W. C. Gordon of Marshall; V.P., Thornton Cooke of Kansas City; Treas., W. B. Sanford of Springfield; Secy., W. F. Kesser of Sedalia. The annual convention at which they were chosen was held at Kansas City.

The Georgia Bankers' Association, in annual convention at Savannah, elected officers for the next year as follows: Pres., F. S. Etheridge of Jackson; V.P.s, 1st, Chas. B. Lewis of Macon; 2d, Rufus H. Brown of Augusta; 3d, Joseph W. Heffernan of Savannah; 4th, T. R. Turner of Haddock; 5th, H. Warner Martin of Atlanta; Secy., Haynes McFadden of Atlanta; Treas., E. C. Smith of Griffin; Gen. Counsel, Orville A. Park of Macon. Next year the convention will be held at Macon.

## \$250,000 Sewer Bonds Voted.

[Special Dispatch to Manufacturers Record.]

Tampa, Fla., May 26.

Total votes for \$250,000 bond issue for completion of sewerage system, at yesterday's election, was 376 for and 167 against. The vote against probably included all citizens opposed, but it was so evident the election would carry that large numbers in favor of bond issue did not take the trouble to vote. The proceeds of this issue will give Tampa probably the most complete sewerage system in this country. Provides for connection for every habitation in the city. D. B. McKay, Mayor.

Writing subsequently to the MANUFACTURERS RECORD, Mayor McKay says: "I am very much gratified by the action of the people in voting the additional money necessary to complete our sewer system. I feel that it is one of the most important steps ever taken by this community, although greater issues, involving larger projects, have been approved in the past. But this issue was necessary to complete the system, and when it is completed we are sure that no city in this country will have a more modern system than we will have."

# Letters from Contractors In Every State in the South

**Tell how they use and rely on the Manufacturers Record  
in seeking contracts and buying equipment and supplies**

It is of inestimable value in keeping up with everything being done in all branches of construction and the companies and individuals doing it.

S. A. LACY,  
Stevenson, Ala.

I find the Manufacturers Record of great value in getting information of proposed work.

J. D. JOHNSON,  
Little Rock, Ark.

We consider it the best contractors' paper in the South, containing more articles and news of concrete interest to contractors than any other paper published.

EDWARDS CONSTRUCTION Co.,  
Tampa, Fla.

In keeping track of what is going on and of proposed work. We consider your publication as the best for such information.

SOUTHERN FERRO-CONCRETE Co.,  
Atlanta, Ga.

I read the Record to keep up with what is going on over the country.

N. A. POWELL,  
Winchester, Ky.

Yes; to keep in touch with construction work generally in the South. A large number of the contracts I have secured in the past few years have been through reading these columns.

J. D. MCGEE,  
New Orleans, La.

As a general reference and guide to work in the nearby States. We find it covers our field better than any other paper.

J. STUART BOND,  
Baltimore, Md.

We regard your journal by far the most serviceable that comes to this office, and depend on it almost entirely for all information that comes within its scope.

BURKES CONSTRUCTION Co.,  
Hattiesburg, Miss.

I read construction items and write letters to towns or individuals asking permission to bid on my line of work.

E. R. DRYDEN,  
St. Louis, Mo.

I have been enabled to secure quite a number of good contracts through information gained from the Record that I would never have heard of without its help.

J. M. HOBBS,  
Greensboro, N. C.

If you want to sell contractors in the Southern and Southwestern States, and reach them when they are buying their supplies, you should write for our recently issued 16-page pamphlet.

## "Southern Contractors"

The statements published in this booklet are from leading contractors in every line, from Maryland to Texas. They give direct evidence that the Manufacturers Record is closely read and consulted, because it helps them to get contracts and buy to an advantage.

In studying opportunities to expand your business in the South, which is developing at a remarkable rate, the facts presented in this pamphlet will convince you that

## You Can Sell Southern Contractors by Advertising in the MANUFACTURERS RECORD

Follow all Oklahoma improvement items with letters and by phone; read same regularly.

KELLY F. GIBSON CONSTRUCTION Co.,  
Broken Arrow, Okla.

Your paper is of greatest value to us in keeping us posted upon new work coming up.

SMITH-KYLE COMPANY, INC.,  
Charleston, S. C.

We find the Record valuable in securing contracts; in fact, have obtained a great deal of work through the Record.

P. C. POWERS & SONS,  
Memphis, Tenn.

We believe it covers our line of work better than any other publication in the South. We are enabled to keep in touch with practically all of the work we are interested in in the South with its help.

ROACH-MANIGAN PAVING Co.,  
Hillsboro, Tex.

Your paper is most valuable to us in your notices of prospective construction and new work.

C. W. HANCOCK & SONS,  
Lynchburg, Va.

Keeps us posted on work coming up and the date of letting.

HATFIELD CONSTRUCTION Co.,  
Barboursville, W. Va.



# Classified Opportunities

## MINERAL AND TIMBER LANDS WATER POWERS MISCELLANEOUS PROPERTIES

**MINING PROPERTY FOR SALE.**—Ruby and commercial corundum deposits, china clay deposits, mica mines, copper and gold deposits. Anyone interested address Charley C. West, Box 115, Franklin, N. C.

**5400 ACRES** virgin hardwood timber land in East Tennessee; price \$10 per acre. About 300-horse water-power, with 80 acres and improvements, on pike close to Birmingham, Alabama; price \$10,000. Farm Realty Co., 828 Jefferson Co. Bank Bldg., Birmingham, Ala.

**HAVE YOU A VALUABLE PROPERTY FOR SALE?** Farm, timber land, mineral property or any other? We can help you get in touch with possible purchasers by an advertisement in these columns. For rates see head of this department.

**FOR SALE.**—245 acres of land, containing immense quantity of asbestos and talc, within five miles of railroad, with strong probability of new road being built right by property within few months. Enough of these minerals in sight to supply large mill for years. Has on it also large lot of fine poplar, oak and chestnut timber. Would sell all or half interest, with the understanding that same would be developed at once. This is the largest deposit of asbestos found in the South. Box B, Helen, Ga.

### CITY PROPERTY

**FOR SALE.**—120 acres in center of city (population 5000); 1800 acres adjoining; magnificent for hotel, subdivision and development; famous resort, creek and springs. Address owner, Doak Aydelott, Tullahoma, Tenn.

### CHINA CLAY PROPERTY

**"CHINA CLAY."**—I have for sale one of the finest china clay properties in this country, with machinery and equipment; the product is well and favorably known to the trade; splendid shipping facilities, with private track from works to station on main line. For prices and terms apply to E. J. Doris, Real Estate Agent, Leonard Bldg., Augusta, Ga.

### LIMESTONE QUARRY

**CEMENT LIME.**—Fine quarry limestone, suitable for high-grade cement. Owner leaving State, and will sell this and other valuable property at sacrifice. B. H. Collier, Opelika, Ala.

### MANGANESE ORE

**MANGANESE ORE.**—Eight hundred acres, located on railroad in Arkansas, offered for quick sale at \$10,000. Address owner, Doak Aydelott, Tullahoma, Tenn.

### COAL LAND

**FOR SALE.**—Coal lands on railroad now building in Eastern Kentucky; 6350 acres; very accessible; coals low in sulphur and ash and high in heating value. Address P. O. Box 1035, Scranton, Penna.

### COAL AND TIMBER LANDS

**FOR SALE.**—Coal lands; lots ranging from 1000 to 30,000 acres, in West Virginia or Eastern Kentucky; also virgin timber lands in West Virginia and ready-cut timber. Address A. M. Foote, Box 673, Huntington, W. Va.

### POLES AND PILING

**I FURNISH** chestnut poles any length, 20' to 75' oak piling any size. Locust post. Have a good stock of poles on hand at all times, and can make prompt shipments. When interested address E. L. Lewis, Relief, N. C.

### TIMBER

**REAL TIMBER BARGAIN.**—50,000,000 ft.; 70% N. C. pine, poplar and cypress, all original growth; on Southern R. R. in South Carolina. Liberal terms and low price. J. P. Mulherin (owner), Augusta, Ga.

**SOME excellent Southern hardwood timber limits.** They are all bargains and will stand strictest investigation. Write me what you want. L. N., P. O. Box 596, Buffalo, N. Y.

### TIMBER LAND

**FOR SALE.**—Several desirable pieces of timber at bargain prices. If you are in the market and want a money-maker, write George J. Philp, Box 42, Oil City, Pa.

**VIRGINIA HARDWOOD TIMBER LANDS,** stumpage or fee. White oak, poplar, chestnut and other woods. Other timber properties. Correspondence solicited. H. K. Fox, Ellersboro, Va.

**FOR SALE.**—3445 acres of timbered land, estimated 10,000,000 feet of timber, 600 cords of tanbark, 28,000 cross-ties and a great number of telephone poles and locust posts, all on or near railroad. For particulars and blueprint address W. A. Mastin, owner, White Sulphur Springs, W. Va., Box 21.

**LONG-LEAF PINE FOR SALE.**—Tract of 35,000 acres virgin long-leaf pine, never cut over or turpentine, accessible to both rail and water; guaranteed to average 9000 feet or better per acre.

Parties with financial ability to buy are invited to correspond with me. B. M. Harvard, Room 721 Maison Blanche, New Orleans, La.

## RATES AND CONDITIONS

Rate 20 cents per line per insertion. Minimum space accepted, four lines. Maximum space accepted, 25 lines. In estimating the cost, allow seven words of ordinary length to a line. When the advertisement contains a number of long words, proper allowance should be made. Terms: Invariably cash with order; check, postoffice or express order or stamps accepted. No display type used. Questionable or undesirable advertisements will not be accepted. The assistance of our readers in excluding undesirable advertisements is requested. We reserve the right to refuse any advertisement. No patent medicine, whiskey or mining stock advertisements accepted. Rate for special contracts covering space used as desired within one year as follows: 100 lines, 18c. per line; 300 lines, 16c. per line; 500 lines or more, 15c. per line.

**FOR SALE.**—In Virginia, 18,000 acres of virgin-growth timber, estimated to be 100,000,000 feet, divided about as follows: 25,000,000 feet of yellow poplar, 40,000,000 feet white, Spanish and chestnut oak, 25,000,000 feet hickory, 10,000,000 feet mahogany, white pine and hemlock. This property is well located, and the land will make fine pasture after the timber is taken off. Also, would make good location for large commercial orchard. Prospective buyers will be shown over the property. Harry M. Lewis, Staunton, Va.

## FRUIT, FARM AND TRUCK LANDS

**THESE COLUMNS ARE CLOSELY READ BY PEOPLE** for information of all kinds about Southern properties of every description. If you have a property of any kind that you want to dispose of, try an advertisement in these columns. Others have to their advantage. For rates see head of department.

### ALABAMA

**16,000 ACRES** good Alabama land for colonization purposes; 40 miles from Birmingham; on railroad. Price \$3.25 acre; terms, half cash. Address Box 162, Birmingham, Ala.

**FOR SALE OR EXCHANGE.**—An old-time Southern plantation near Miss. line on Tombigbee River; 2600 acres of land; 1400 in cultivation, level, rich and productive. Fine old colonial home of 12 rooms. This is one of the best improved farms in the South. Price \$30 per acre on any reasonable terms. Part exchange in city property considered. Bailey-Jones Real Estate & Ins. Co., 221 N. 21st St., Birmingham, Ala.

**GOOD INVESTMENT.**—We offer for sale 13,000 acres of best farm, fruit and stock-raising land in solid body, situated only a short distance from Bay Minette in Baldwin county, Alabama.

This land lies well, being level to slightly rolling, with several streams of running water through the tract, making it very desirable for colonization purposes.

This tract can be purchased for the low price of \$7 per acre. Will arrange terms. T. L. Moore & Co., Room 109 Masonic Temple, Mobile, Alabama.

### FLORIDA

**FREE.**—William L. Larkin's booklet, "The Truth About Florida," with a six-months' subscription (at one-half regular rates) to The Indian River Farmer. Fruit growers, truckers, general farmers, folks interested in Florida, send 25c. to The Indian River Farmer, V-1, Vero, Fla.

**FLORIDA ORANGE GROVE FOR \$99.**—Five minutes' walk from street car to Pensacola, a city of 30,000. 25 cents reserves a grove and brings full particulars with photo album of twenty colored views. Send today, as groves are limited. National Land Sales Company, Box 625, Pensacola, Fla.

**25,000 ACRES** best marl and hammock land in Cape Sable country, close to railroad and highway; best investment in large tract and good land in Florida. Low price and terms. Write or call on D. S. Jones, Room 7 Real Estate Building, Miami, Fla.

**CHOICE citrus and truck lands** for sale in the Manatee River section of Manatee County, Florida; also water fronts. Send for soil survey report and views. Manatee River Land Co., Inc., 101½ Franklin St., Tampa, Fla.

**FLORIDA, PINEALLIS COUNTY, ON OLD TAMPA BAY.**—A gentleman living the entire year on his plantation, which is situated very pleasantly adjacent to the salt water, the soil and conditions being of the very best, will sell some acreage to someone of refinement and of sufficient means to improve and prove to be a desirable neighbor. Jos. Beaumont, care of Box 35, R. F. D. 1, Clearwater, Florida.

**FLORIDA.**—8000 acres cut-over land lying between Lake Crescent, Lake Louise and Lake George, in Putnam and Volusia counties, traversed by main line of A. C. L. Railway; large portion especially adapted to orange and grapefruit culture; balance finest potato and general farming land; lands all round selling \$20 to \$100 per acre. My price, \$10 per acre in a body; terms. Correspondence solicited. Chas. A. Brown, Jr., 30-31 Buckman Building, Jacksonville, Fla.

### GEORGIA

**STOCK FARM.**—4100 acres; \$15 acre. On graded highway and railroad, three miles on Chattahoochee River; river and railroad transportation to Gulf. High, stumped, level fields, magnificent river and creek bottoms. Well improved. Farmers' Land, Loan & Title Co., 145 Pine Street, Albany, Georgia.

### NORTH CAROLINA

**FOR SALE.**—1000 acres Martin county; 3,000,000 feet merchantable pine timber on same; on public road; good location; fine soil; no better in North Carolina; worth \$30 per acre; will take \$12.50 on ten years' time. Also, 1200 acres swamp land, 3,000,000 feet of gum timber, in Washington county, \$5.50 per acre, 10 years' time. Washington-Beaufort Land Company, Washington, N. C.

### VIRGINIA

**VIRGINIA ESTATES.**—Colonial homes, plantations, farms, suburban homes, Albemarle pippin orchards, timber lands. Write us for what you want. We have it. R. N. Flanagan & Co., Charlottesville, Va.

**FOR SALE.**—130-acre dairy farm, 7 miles from Richmond; good land, good roads, railroad, car line, house, barns, well watered, good markets, near Chesterfield Creamery. A bargain. Write Arthur B. Bellwood, So. Richmond, Va.

**POULTRY AND STOCK FARM,** 17 miles from Richmond, half mile flag station, one mile Hallsboro; new house; good buildings; chicken and turkey houses and runs; pigeon loft. Address R. B. Basham, Topeka, Kans.

**ESTABLISHED 1893.**—From long experience we are thoroughly familiar with lands and values and have some genuine bargains listed. Tell us what you want and let us submit some special offerings. Southern Farm Agency, Lynchburg, Virginia.

## BUSINESS OPPORTUNITIES

**\$75 STARTS** you in business, selling our adjustable form units for building any size and shape concrete culverts. Cheaper than any other forms. Frick Mfg. Co., Fricks, Pa.

**FLORIDA ORANGE GROVE FOR \$99.**—Five minutes' walk from street car to Pensacola, a city of 30,000. 25 cents reserves a grove and brings full particulars with photo album of twenty colored views. Send today, as groves are limited. National Land Sales Company, Box 625, Pensacola, Fla.

**I DESIRE** to correspond with a builder, contractor or architect who can build and finance a 50 or 60-room concrete hotel (we have fine concrete sand here on the ground) and take a first mortgage or a 6 per cent. first mortgage bond on the property upon which the hotel is built, and the building, in payment. The hotel ground is worth \$10,000, is water-front property, and located right at the famous Espritito Santo Springs. Address W. E. Sinclair, Safety Harbor, Fla., for full particulars.

**FOR SALE OR TRADE.**—A going eye-hoe factory; will inventory \$30,000; will sell for cash or take one-half cash and balance in improved Southern land. For further particulars address L. E. Frick, Cashier North Side Bank, Evansville, Ind.

**ELECTRIC-LIGHT PLANT.**—Would like to correspond with parties who can finance and build electric plant. Engineer employed. Address Leon Hood, W. & L. Commission, Carrollton, Ga.

**WANTED.**—Have \$5000; wish to invest, with services, in a safe business proposition; construction or general contract work preferred; partner to put up equal amount with services. Southern States preferred. Address No. 1765, care Manufacturers Record.

**WANTED.**—Partner with \$3000 to open garage and salesroom for automobiles and trucks, including repair work and accessories. I will put in same amount with services. South preferred. Address No. 1765, care Manufacturers Record, Balto., Md.

**WANTED.**—To represent some strong mortgage or trust company who has money to loan on long-time well-improved real-estate first mortgage not exceeding fifty per cent. value; eight per cent. net; am thoroughly posted on values and well established in business. John T. Ellis, Montevallo, Ala.

**CONTROLLING INTEREST** can be bought in hardwood plant making wagon spokes, hubs, hatchet, hammer, pick and other hand tools, situated in Piedmont section Carolina. Live, going concern. Fine opportunity for man with a few thousand dollars, who has practical knowledge or who wishes to be Sec. and Treas. Address No. 1764, care Manufacturers Record, Balto., Md.

## COLLEGES AND SCHOOLS

**RENSSELAER POLYTECHNIC INSTITUTE, TROY, N. Y.**—Courses in Civil, Mechanical, Electrical and Chemical Engineering and General Science, leading to the degree of Civil Engineer (C.E.), Mechanical Engineer (M.E.), Electrical Engineer (E.E.), Chemical Engineer (Ch.E.), and Bachelor of Science (B.S.). Also special courses. Splendidly equipped new engineering laboratories. Send for catalogue to Registrar.

## CAPITAL WANTED

**FLORIDA CATTLE RANCH.**—Correspondence is solicited from party with \$37,500 for ½ interest in a ranch for raising and fattening cattle. J. M. Willson, Jr., Kissimmee, Fla.

## INTEREST IN COAL-MINING COMPANY FOR SALE

**AN UNUSUAL OPPORTUNITY** to secure an interest in a splendidly equipped operation in the Pocahontas field, working the original No. 3 seam, 5 feet thick. The management is in the hands of the wealthiest and most successful operators in the field. Over \$400,000 has been spent on the improvements, and the works have never lost a day for want of orders. The large stockholders and directors represent a tonnage of several millions annually and a wealth of many millions of dollars.

Particulars as to the directors and stockholders will be furnished to bona-fide interested parties.

The unusual conditions prevailing for the past year compels the owner (a non-resident) to sacrifice the stock, which will be sold for \$50 per share, par value \$100, and it cost that. Terms easy; \$10 per share down and \$10 per share per month. Certificates in one-share lots or any number. Brokers protected. Address No. 1684, care Manufacturers Record, Balto., Md.

## WHERE TO SPEND THE SUMMER, MOUNTAIN—LAKE—SEASHORE

**ROCKPORT, MASS.**—Cottages with modern improvements and grand ocean view to let, \$300-\$800 season. Camps, \$100 up. Miss Thurston, 20 Pleasant St.

## RESORT HOTEL FOR SALE

**FAMOUS MINERAL SPRINGS HOTEL,** 160 rooms, furniture and fixtures; 200 acres land; 40-acre lawn; easy reach of Cincinnati, O. Cost approximately \$90,000. A beautiful mountain resort. For sale or exchange. What have you to offer? J. E. Shump, First National Bank Bldg., Portsmouth, Ohio.

## PATENT ATTORNEYS

**EUGENE C. BROWN, ENGINEER AND PATENT LAWYER,** Suite 40 Victor Bldg., Washington, D. C. Graduate Engineer, Lehigh University. Member Bar U. S. Supreme Court. Patents and Trade-Marks. Inventions considered from an engineering standpoint to determine their breadth in covering equivalent constructions and extent of monopoly, and from a legal standpoint in framing adequate claims to protect such monopoly against infringement. Over 20 years devoted exclusively to patent matters; over 9 years Examiner in U. S. Patent Office. Patents secured; infringement suits conducted in all courts; reports upon validity, scope and infringement of patents; send sketch and description of invention.

**MONEY IN PATENTS.**—I secure your patent or return my fee. Manufacturers want Mills patents. Write for free booklet, "How to Get Your Patent and Make Your Profit Thereon." I assist in selling your patent. Mansell F. Mills, Registered U. S. Patent Attorney, 252 Com. Nat. Bank Bldg., Washington, D. C.

**VALUABLE INVENTIONS** justify only best legal service. Consult Vernon E. Hodges, Attorney-at-Law, Barrister Bldg., Washington, D. C. Practice before the U. S. Supreme Court; all Circuit Courts; Courts of the District of Columbia, and the U. S. and Foreign Patent Offices exclusively. Continuous practice since 1886. Extensive experience with all classes of invention, representing lawyers, manufacturers and inventors in every State.

# Classified Opportunities

**EDWARD BRUCE MOORE**, sole offices, 150 Barrister Building, Washington, D. C. Head of United States Patent Office and Commissioner under Presidents Roosevelt, Taft and Wilson, and Assistant Commissioner under President McKinley. Do not waste money for patents procured by unknown and incompetent attorneys. They are worthless, and manufacturers and investors will not buy them nor do they fully protect your invention. Consult an expert known throughout the patent world. A known attorney's name on your patents adds value. Costs no more to be safe.

**PATENTS THAT PROTECT AND PAY.** Advice and books free. Highest references. Best results. Promptness assured. Trade-marks registered.

Watson E. Coleman, Patent Lawyer, 624 F St., Washington, D. C.

**"WORDS OF VALUE TO INVENTORS"** sent free; should be carefully read before applying for patents. John H. Woodworth, Registered Atty., Ward Bldg., Wash., D. C.

**PATENTS.**—Herbert Jenner, patent atty. and mechanical expert, 606 F St., Washington, D. C. I report free of charge if a patent can be had and its exact cost. Send for circular.

**PATENT YOUR IDEAS.**—\$9000 offered for certain inventions; book, "How to Obtain a Patent" and "What to Invent," sent free upon request; send rough sketch for free report as to patentability. We advertise your patent for sale at our expense. Chandler & Chandler, patent attorneys, 978 F St., Washington, D. C.

**C. L. PARKER**, Patent Lawyer, formerly member Examining Corps, U. S. Patent Office, 924 G St., Washington, D. C. Patents secured. Patent suits conducted. Reports on the patentability of inventions, the scope and validity of patents, and whether any process or machine infringes existing patents. Reference to prominent manufacturers and pamphlet of instruction furnished upon request.

**PATENTS** secured or Fee returned. Send sketch for free report as to patentability. Guide book and what to invent, with valuable list of inventions wanted, sent free; \$1,000,000 offered for inventions. Patents secured by us advertised free in World's Progress; sample free. Victor J. Evans & Co., 12 Ninth St., Washington, D. C.

## INDUSTRIES WANTED

### COTTON FACTORY

WANTED—Cotton factory; have splendid location; fat bonus to right party. Wm. Fitzsimmons, Tullahoma, Tenn.

### MISCELLANEOUS

WATER and railroad facilities can be had here. Labor is plentiful. The best of schools, churches and shipping facilities. We have an attractive proposition to new industries. If interested, write us. Pocomoke City Board of Trade, Pocomoke City, Md.

**WEST POINT, VIRGINIA.** OFFERS TO MANUFACTURERS natural advantages that will offset a big per cent. of bonuses offered by other cities not so well located. It will pay you to investigate before locating. Chamber of Commerce.

**LOCATE YOUR PLANT IN MARION, NORTH CAROLINA.** Complete railway facilities. Raw material. Cheap fuel. Good labor. Ideal climate. For further particulars address The Board of Trade, Marion, N. C.

## WAREHOUSE OR FACTORY BUILDING FOR LEASE

**FOR LEASE.**—Warehouse or factory building (on two R. R. tracks, capacity 12 cars), 30,000 feet floor space; electric elevator, two large boilers, one large Corliss engine, air compressor, well, heaters, etc.; 50,000 gallon steel tank; fine for mixed-feed plant, warehouse or general manufacturing purposes. Churchill & Co., Agents, 85 Madison, Memphis, Tenn.

## FACTORY SITES

**VALUABLE MANUFACTURING SITE**, nine miles from Charlotte, N. C., with long frontage on two competitive railroads, electric power line, large stream of pure clear water through the land. Tract contains 141 acres. Will sell all or any part on reasonable terms. Want \$60,000, first mortgage, on two spinning mills, worth \$150,000. Interstate Improvement Co., Charlotte, N. C.

**BALTIMORE FACTORY AND TERMINAL SITES.**—Statement of Asa G. Candler, President The Coca-Cola Co.: "Investigation convinced us that Baltimore is not only the commercial metropolis for Southern trade, but that it affords shipping opportunities both by water and rail for domestic and foreign traffic superior to any of the great cities in any section of the United States." Locate in Baltimore and derive these advantages. We can provide accommodations to meet your requirements. Wm. Martien & Co., 3 N. Calvert St., Baltimore, Md.

## INDUSTRIAL PLANTS FOR SALE

### FURNITURE-INTERIOR TRIM PLANT

**FURNITURE, PANEL, INTERIOR TRIM PLANT.**—For quick sale, the best factory in the South for manufacture of panel, furniture or interior trim. Special advantages in rates, taxes, labor, raw material, both yellow pine and hardwoods. Plant is new, fireproof, and insurance rate is 66 cents per \$100. Sale price is less than half the cost. Write for particulars and photographs. J. P. Mulherin, Trustee, Augusta, Ga.

### ICE PLANT

**ICE PLANT FOR SALE.**—Ten-ton ice plant for sale, 33 miles from Corpus Christi, on B. & M. and S. A. P. R. R. Have artesian well, flowing water and sufficient gas to light plant and part supply to run boiler. Am doing a nice business. Address J. N. Makley, Sinton, Texas.

### FACTORY BUILDING

**FOR SALE.**—A large factory building, 600 ft. long, 60 ft. wide; cement floors. Has been used as a leather enameling works. Building in excellent condition. Terms reasonable, or will take interest in any good prospect. Located at Yardley, Pa. Address Century Enameling Co., care Charles T. Eastburn, Yardley, Pa.

### BRICK MANUFACTURING PLANT

**FOR SALE OR LEASE** on liberal terms, vitrified brick manufacturing plant located in the South; modern equipment; capacity 50,000 daily; lowest rates on all Southern points. Address Wm. Pannill, Agent, Heard Building, Jacksonville, Fla.

### BRICK PLANT

**FOR SALE.**—Brick plant in good territory; excellent clay and fair patronage. Write us for particulars. Abilene Press Brick Co., Abilene, Texas.

### ELECTRIC LIGHT PLANT

**ELECTRIC-LIGHT PLANT**, located in Western Missouri, now serving population of 800, which will be increased to 1500 within six months by addition of short transmission lines; everything new and modern; in operation two months and now showing profit. Any reasonable terms given. Best of reasons for selling. Address No. 1763, care Manufacturers Record, Balto., Md.

### MISCELLANEOUS

**FOR SALE.**—50-bbl. flour and feed mill, elevator, pancake factory, wholesale hard wheat flour, and coal business; brick buildings; run by electricity; doing good business; two railroads and interurban line; ill-health absolutely only reason for selling. Neill & Van Valer, Jonesboro, Ind.

## MODELS

**MODELS MADE FOR INVENTORS.**—General machine work. Designing and perfecting. Developing automatic devices and machinery. In a position to do all kinds of light tool and machine work. Prices reasonable. Estimates cheerfully given. Ideal Machine Works, 64 Ann Street, New York City.

## MANTELS AND TILE FLOORS

**NORTHCROSS WOOD MANTELS AND TILE FLOORS** for every purpose. Sold direct from factory to your home. All orders receive prompt attention. Every contractor should have a copy of our new catalog showing the largest line in America. Mailed free. W. J. Northcross Mantel Company, 73 Union Ave., Memphis, Tennessee.

## WATERPROOFING

**FOR WATERPROOFING** stucco and all concrete work, use Minol. Costs 22c. a gal. in barrel lots. Write for booklet. J. M. Gifford, Stuyvesant, N. Y.

## MEN WANTED

**ARE YOU LOOKING FOR A GOOD MAN?** There are a number looking for you. You can get together through an advertisement in these columns. Try it. For rates and other information see block at head of department.

**FARM AND TIMBER SALESMAN** to work Northern and Western territory. Have good proposition to offer right man. References given and required. Chas. B. Harman, Gainesville, Fla.

**FIRST-CLASS JOINERS** wanted at Newport News Shipbuilding and Dry Dock Company, Newport News, Va.

**REPRESENTATIVES** to cover territory more thoroughly. Boiler-room necessities; liberal commissions; old-established house. Apply by letter. H. F. Maurel, 534 West 22d St., New York City.

**IF QUALIFIED** for executive, technical, mechanical, professional or administrative position carrying salary between \$2500 and \$12,000, write undersigned counsel, through whom strictly confidential preliminaries will be negotiated for important appointments. Send address only for prefatory details. R. W. Bixby, Lock Box 134-J4, Buffalo.

## PARTNER WANTED

**WANTED.**—Partner with \$8000 to install electric-light plant in growing town in Florida. Box 614, Lakeland, Fla.

## AGENCIES WANTED

**WANTED.**—Sales agency for all lines pertaining to builders' specialties; East Tennessee as territory; can furnish satisfactory references to interested concern; modern warehouse facilities. Address Daniel Briscoe, Jr., 325-327 State St., Knoxville, Tenn.

## SITUATIONS WANTED

**YOUNG MARRIED MAN** with 11 years' banking experience desires to make change; connected with city bank now; can invest about \$1500; best of references. Address No. 1768, care Manufacturers Record, Balto., Md.

**POSITION WANTED.**—Electrician with 12 years' experience in the installation, operation and maintenance of engines, generators, motors and electrical equipment, desires to make a change. A high-grade electrician and an expert on maintenance and repairs of cranes and motor-driven machinery. Address No. 1767, care Manufacturers Record.

**EXPERIENCED** wood turpentine operator desires position; ten years' experience building and operating plants, understands business thoroughly, and can furnish good references as to ability and integrity. Address No. 1761, care Manufacturers Record, Balto., Md.

## LETTERHEADS, PRINTING, ETC.

**LITHOGRAPHED** Letterheads; at low cost—\$500, \$2 per M; 10,000, \$1.75 per M; 25,000, \$1.40 per M. Nominal engraving charge on 1st order; quality guaranteed. Write for samples on your own letterhead. Monarch Lithographing Co. (Dept. E), Minneapolis, Minn.

**EMBOSSED LETTERHEADS, TOKYO BOND PAPER**, 1000, \$4.00. Envelopes to match, \$4.00 for the 1000. We use 20-lb. to the ream paper. Send for samples. Turner & Dunlap, Wilkes-Barre, Pennsylvania.

**5000 LITHOGRAPHED** letterheads, \$13.75; good bond paper; quality guaranteed; no charge for engraving; samples upon request. The Art Press, Dept. A, Lima, Ohio.

## REBUILT TIME AND COST KEEPING RECORDERS

**TIME CLOCKS**, Dey and International bi-chrome machines, calculagraphs, cost-keeping recorders; everything in time clocks and supplies. R. G. Watkins, 9 Church St., N.Y. City.

## DUPLICATING MACHINES

**MULTIGRAPH**, Duplicating and Printing Machines (slightly used), \$280; cost \$60. Smaller models cheaper. Universal folding machine (almost new) at one-half cost. All guaranteed. Will ship for trial. Russell Baum, Bourse Bldg., Philadelphia, Pa.

## MACHINERY AND SUPPLIES

### GRANULATED CORK

**FOR SALE.**—50 tons pure granulated cork, cheap. Apply New Orleans Cold Storage & Warehouse Co., Ltd., New Orleans, La.

### NAILS

**NEW NAILS.**—Have several hundred kegs of various sizes of cut and wire nails. Attractive price in any quantity. Address L. A. Green, 1512 First Natl. Bank Bldg., Pittsburgh, Pa.

## Can You Use New Capital? Can You Use New Blood? Found the Man We Wanted

TWIN CITY BOILER AND SHEET IRON WORKS, Incorporated

BRISTOL, VA., May 8th, 1915

Manufacturers Record, Baltimore, Md.

Gentlemen:—

We want to tell you how much service your publication has given us:

Last Spring we had occasion to employ an office man who could invest some money in the business, and we inserted an ad. in your Classified Advertisements, making our wants known. We immediately began to receive letters from all over the U. S. and Canada. We found the man we wanted in Denver, Col., and Mr. H. L. Wilson has been with us since the first of April, 1914.

This merely shows how widely the Manufacturers Record is distributed and read. We consider it one of the greatest journals printed, and as an advertising medium it cannot be surpassed.

Yours very truly,

TWIN CITY BOILER AND SHEET IRON WORKS, INC.

J. G. TILLEY, Pres.

As a meeting place for buyer and seller, employer and employee, investors and those having business opportunities of all kinds to offer, the "Classified Opportunities" department has proven its ability to get results to such an extent that these columns are now used for a wide variety of small advertisements where the opportunity offered does not warrant large display.

Whether you are seeking a purchaser for your plant, city property, mineral, timber or farm land, etc., a new location for your factory or home, an investment of any kind, a position, agent, employee or partner, or whether you have an advertisement of interest to business men generally, you will find the classified columns of invaluable assistance.

For rates and conditions see block at head of department.



# PROPOSALS

BOND ISSUES

BUILDINGS

PAVING

GOOD ROADS

**TREASURY DEPARTMENT**, Supervising Architect's Office, Washington, D. C., May 28, 1915. Sealed proposals will be opened in this office at 3 P. M. July 9, 1915, for the construction, complete (including mechanical equipment, lighting fixtures, and approaches), of a two-story-and-basement stone, terra-cotta, and brick-faced building of 3750 square feet ground area, partly fire-proof construction, composition roof, for the United States postoffice at Beardstown, Ill. Drawings and specifications may be obtained from the custodian at Beardstown, Ill., or at this office, in the discretion of the Acting Supervising Architect. JAS. A. WETMORE, Acting Supervising Architect.

**PROPOSALS FOR COAL.** U. S. Engineer Office, Wilmington, N. C. Sealed proposals will be received here until 12 M. June 23, 1915, and then opened for furnishing about 12,000 tons of bituminous coal. Further information of application.

## \$90,000 5% Bonds

Bids will be received until 2 P. M. June 16, 1915, by the Mayor and City Recorder of the City of Cleveland, Tenn., for \$90,000 5 per cent. bonds, proceeds of same appropriated as follows: \$75,000 for Sewer System and \$15,000 for the erection of a City Hall and equipping fire department.

No bid less than par can be considered. Certified check to the amount of \$500 must accompany each bid. For particulars write ELMO BARTLETT, City Recorder, Cleveland, Tenn.

## \$35,000 Bond Sale

Washington, N. C.

The city of Washington, North Carolina, will open bids on June 15, 1915, for the sale of \$35,000 Municipal Improvement Bonds, interest payable semi-annually on the first days of July and January. Bonds mature January 1, 1933. Assessed valuation, \$2,700,000; actual estimated valuation, \$5,000,000; bond debt, \$370,000.

Address all bids to W. C. Ayers, City Clerk. For further information apply to H. C. Carter, Jr., City Attorney.

## \$30,000 4% Bonds

\$30,000 4 per cent. school bonds, dated June 1, 1914, maturing in 34 years, but may be redeemed in ten years, issued by Clay District, Ritchie County, West Virginia. All questions connected with the election authorizing said bond issue have been passed on by the Circuit and Supreme Court of Appeals of said State. Assessable property in District, \$5,200,000. This is the only bond issue therein. Bids will be received until noon June 19, 1915.

J. A. WOODDELL, Secretary, Pennsboro, W. Va.

## \$58,000 5% Bonds

Fort Meade, Fla., May 12, 1915.

The Board of Bond Trustees of Fort Meade, Fla., will, up to and until noon of June 15, 1915, receive bids for \$58,000 issue of Street Paving, Electric Light and Water and Sewer Bonds. Bonds mature May 1, 1945. Interest at the rate of 5 per cent. per annum, payable semi-annually. Right is reserved to reject any or all bids. No bids considered unless accompanied by certified check for \$500 as evidence of good faith.

For further information address J. J. Singleton, Secy., Fort Meade, Fla.

## \$75,000 5% Bonds

Sealed proposals will be received by the undersigned until June 25, 11 o'clock A. M. (to then be opened and awarded), for the purchase of \$75,000 Road Improvement Coupon 5 Per Cent. Bonds; semi-annual, January 1, July 1, payable New York City; denomination \$100. Bonds to mature in forty years. The Highway Commission reserves the right to reject any and all bids.

R. A. BURCH, Secy. Highway Com., Roxboro, N. C.

## \$200,000 Cocke County (Tennessee) Road Bond Issue

Newport, Tenn.

Sealed bids will be received by the undersigned until 1 o'clock P. M. Tuesday, June 22, 1915, for \$200,000 bonds of the denomination of \$1000, to be dated July 1, 1915, due and payable 30 years from date, bearing 5 per cent. interest, payable semi-annually on January 1 and July 1 of each year, the principal and interest payable at the Chase National Bank in the city of New York, N. Y.

Each bid must be accompanied by a certified check of \$5000 on a reputable bank, payable to the Cocke County Pike Commission, and the right is reserved to reject any and all bids.

Bids and inquiries should be addressed to the Cocke County Pike Commission, Newport, Tenn.

This May 31, 1915.  
GEO. W. GORRELL, Chairman;  
F. S. HUFF,  
W. E. BIBLE,  
Commissioners.  
EVERETT GREER,  
Secretary.

## PROPOSAL ADVERTISING INFORMATION

RATE: 20 cents per line per insertion.

PUBLICATION DAY: Thursday.

FORMS CLOSE 9 A. M. Wednesday. Copy received later cannot be published until issue of following week.

NIGHT LETTER: When too late to send copy by mail to reach us by 9 A. M. Wednesday, forward by night letter.

THE DAILY BULLETIN OF THE MANUFACTURERS RECORD:

Published every business day; gives information about the industrial, commercial and financial activities of the South and Southwest.

The Daily Bulletin can be used to advantage when copy cannot reach us in time for publication in the Manufacturers Record before bids are to be opened, or when daily publications are necessary to meet legal requirements.

The same rate applies—20 cents per line per insertion.

## Sale of \$25,000 Northampton County (Virginia) Road Bonds

By order of the Board of Supervisors of Northampton County, Virginia, sealed bids will be received by Geo. T. Tyson, Clerk of the Board of Supervisors of Northampton County, Virginia, until Tuesday, June 15, 1915, at 12 o'clock M., for all or any part of \$25,000; said bonds to be in denominations of \$500 each, and payable thirty (30) years from date, with coupons attached for the semi-annual payment of interest, which said bonds shall be made redeemable at the discretion of said Board at any time after the expiration of five (5) years from date of issue. Said bidder or bidders shall state at what rate of interest they will furnish said money; said bonds to be dated and money furnished June 30, 1915, and interest to be paid at the office of the Treasurer of said county. The right is reserved by said Board of Supervisors to reject any or all of said bids. These bonds are to be issued for permanent road improvement in Eastville Magisterial District, pursuant to an Act of the General Assembly of Virginia, entitled "An Act to authorize Northampton county to borrow money and issue bonds for a sum not exceeding \$50,000 for the purpose of building, improving and maintaining the public roads in Eastville Magisterial District, in said county," approved March 15, 1915; but the full faith and credit of the entire county of Northampton is to be pledged for their payment, and a tax to be levied upon the property in said Eastville District to pay the interest on them and create a sinking fund sufficient in amount to pay them upon maturity.

GEO. T. TYSON,  
Clerk of the Board of Supervisors  
of Northampton County, Eastville, Va.  
May 12, 1915.

## \$210,000 6% Bonds

Arcadia, Fla.

Notice of Sale of Bonds for Special Road and Bridge District No. 1 in DeSoto County, Florida.

Notice is hereby given that the Board of County Commissioners of the County of DeSoto, State of Florida, will receive sealed bids at the Clerk's Office in the Court House at Arcadia, Florida, until 2 o'clock in the afternoon on the 8th day of June, 1915, from all purchasers desiring to purchase bonds of Special Road and Bridge District No. 1 in DeSoto County, Florida, authorized and issued by said Board of County Commissioners for said Special Road and Bridge District No. 1 in the sum of \$210,000.

The entire bond issue of \$210,000, or any part thereof, is hereby offered for sale, the same being in denominations of \$500 each, bearing date July 1, 1915, and maturing either 20 or 30 years after date and bearing interest at the rate of 6 per cent. per annum, with the usual interest coupons covering same attached thereto, interest payable semi-annually, and interest and principal payable at the office of, and to, the County Treasurer, Arcadia, DeSoto County, Florida. The said Board of County Commissioners of DeSoto County, Florida, reserves the right to sell the whole or any part of said bond issue and also to reject any or all bids. Each bidder is required to furnish a certified check, payable to the County Treasurer of DeSoto County, Florida, accompanying bid, for 2 per cent. of the amount of his bid as evidence of good faith. Checks of the successful bidder will be applied on purchase, or, in case of his failure to comply with his agreement of purchase, then and in that event said check and the amount thereof shall be forfeited to the said County of DeSoto as liquidated damages, and said check shall be cashed and the amount thereof received by the County Treasurer immediately upon the acceptance of bid of successful bidder. Each bidder will state the time when he will comply with his bid, and shall also specify whether the bid is in current money or in evidences of indebtedness against said County of DeSoto. Checks of all unsuccessful bidders will be returned to them.

This notice is given by order of the Board of County Commissioners of DeSoto County, Florida, and dated this 13th day of May, A. D. 1915.

A. L. DURRANCE,  
Clerk of said Board and of DeSoto County, Florida.

[Seal.]

## \$35,000 School Bonds

Chapel Hill, N. C.

Sealed bids will be received by N. W. Walker, Secretary of the Board of Trustees of the Chapel Hill Graded School District, up to the hour of noon June 30, 1915, for the purchase of Thirty-five Thousand Dollars (\$35,000) of School Bonds; denomination \$1000. Bonds to run 30 years; interest payable semi-annually, July 1 and January 1. Bids invited at 5, 5½ and 6 per cent. interest. No bid for less than par accepted. Low rate of interest preferred to higher premium. Purchaser to furnish blank bonds. The Board reserves the right to reject any and all bids.

## \$4500 6% Bonds

FALLING SPRING CORPORATION ROAD BONDS.

Renick, W. Va. Sealed proposals will be received by the Council of the Town of Renick, at their office, up to noon on the 15th day of June, 1915, for the purchase of forty-five six per cent. 20-year coupon bonds, optional after 10 years, interest payable annually on the first day of July. Bonds to be in denomination of \$100 each.

Each bid must be accompanied by a certified check of \$100 and addressed to the undersigned.

The right to reject any and all bids is reserved.

W. P. LOWE, JR.,  
Chairman of Bond Committee.

## \$256,000 6% Bonds

Bartow, Fla.

The Peace Creek Drainage District will, on the 15th day of June, 1915, at 2 P. M., at the office of the said district, 77 Main street, Bartow, Florida, offer for sale Drainage Bonds in the sum of \$256,000, dated April 10, 1915, and maturing serially as follows: \$10,000 April 10, 1921; \$12,000 April 10, 1922; \$12,000 April 10, 1923; \$13,000 April 10, 1924; \$14,000 April 10, 1925; \$15,000 April 10, 1926; \$16,000 April 10, 1927; \$17,000 April 10, 1928; \$18,000 April 10, 1929; \$19,000 April 10, 1930; \$20,000 April 10, 1931; \$21,000 April 10, 1932; \$22,000 April 10, 1933; \$23,000 April 10, 1934; \$24,000 April 10, 1935, bearing interest at the rate of 6 per cent. per annum, payable semi-annually. Reserving the right to retain \$50,000, or any portion thereof, of said bonds, the proceeds of the sale of which may be found unnecessary to complete the plan of reclamation of the said district.

Certified check in the sum of \$5000 must accompany each bid as a guarantee of faithful performance. The right to reject any or all bids is hereby reserved. Data furnished on request.

R. C. HATTON,  
E. L. MACK,  
LYCURGUS BURNS,  
Board of Supervisors.  
BENJ. GETZOFF,  
Asst. Secy.

C. G. ELLIOTT, Chief Engineer,  
McLachlen Bldg., Washington, D. C.

## \$50,000 5% Bonds

Sealed bids will be received by the Board of Town Commissioners of Hertford, North Carolina, up to 7:30 o'clock P. M. on June 8, 1915, and then opened, for the purchase of bonds of the Town of Hertford in the sum of fifty thousand dollars (\$50,000), said bonds to bear interest at the rate of 5 per cent. per annum, payable semi-annually on the 1st day of June and on the 1st day of December, respectively, of each year, which interest shall be evidenced by coupons attached to said bonds. Said bonds will mature ten thousand dollars thirty years from date of issue, ten thousand dollars thirty-five years from date of issue, ten thousand dollars forty years from date of issue, ten thousand dollars forty-five years from date of issue, and ten thousand dollars fifty years from date of issue. The purposes for which said bonds are issued are as follows: For water-works, seventeen thousand dollars; for sewerage system, thirteen thousand dollars; for electric-light system, twelve thousand dollars; for street paving, eight thousand dollars. All bids should be addressed to the Board of Town Commissioners of Hertford, North Carolina, and must be accompanied by a certified check, payable to their order, in the sum of five hundred dollars. The bonds are to be prepared and furnished at the expense of the

purchaser. The Town of Hertford reserves the right to reject any and all bids. For further information apply to W. E. White, Mayor, or W. C. Winslow, Clerk, Hertford, North Carolina.

W. E. WHITE, Mayor,  
W. C. WINSLOW,

## State Highway

STATE OF MARYLAND.  
STATE ROADS COMMISSION.  
NOTICE TO CONTRACTORS.

SOMERSET COUNTY: Contract No. 8-3. Sealed proposals for building one section of State Highway from Marion to Hopewell, about 4.40 miles in length (Concrete), will be received by the State Roads Commission at its offices, 601 Garrett Building, Baltimore, Maryland, until 12 M. on the 15th day of June, 1915, at which time and place they will be publicly opened and read.

Bids must be made upon the blank form contained in the book of specifications. Specifications and plans will be furnished by the Commission upon application and cash payment of \$1, as hereafter no charges will be permitted.

No bids will be received unless accompanied by a certified check for the sum of five hundred (\$500) dollars, payable to the State Roads Commission.

The successful bidder will be required to give bond and comply with the Acts of the General Assembly of Maryland respecting contracts.

The Commission reserves the right to reject any and all bids.

By order of the State Roads Commission this 24th day of May, 1915.

O. E. WELLER,  
Chairman.  
WM. L. MARCY,  
Secretary.

## State Highway

STATE OF MARYLAND.  
STATE ROADS COMMISSION.  
601 Garrett Building,  
Baltimore, Md.

NOTICE TO CONTRACTORS.

Sealed proposals for building 3 sections of State Highway, aggregating about 4.12 miles in length, as follows:

Contract No. B-22, BALTIMORE COUNTY: One section along the York Road from end of improved section of State Road to near Verona, about 1.04 miles in length. (Resurfacing.)

Contract No. 042, CECIL COUNTY: One section of road from near Calvert towards Blue Ball, about 2.05 miles in length. (Concrete or Macadam.)

Contract No. 0265, CAROLINE AND TALBOT COUNTIES: One section of road, both sides of Dover Bridge, a total distance of about 1.00 mile. (Macadam.)

Will be received by the State Roads Commission at its office, 601 Garrett Building, Baltimore, Md., until 12 M. on the 22d day of June, 1915, at which time and place they will be publicly opened and read.

Bids must be made upon the blank form contained in the book of specifications. Specifications and plans will be furnished by the Commission upon application and cash payment of \$1 for each contract, as hereafter no charges will be permitted.

No bid will be received unless accompanied by a certified check for the sum of five hundred (\$500) dollars, payable to the State Roads Commission.

The successful bidder will be required to give bond and comply with the Acts of the General Assembly of Maryland respecting contracts.

The Commission reserves the right to reject any and all bids.

By order of the State Roads Commission, this 28th day of May, 1915.

O. E. WELLER,  
Chairman.  
WM. L. MARCY,  
Secretary.

## Highway

Rockville, Md.

Sealed proposals, addressed to the Commissioners of Montgomery County, and endorsed "Proposals for building a section of State-aid highway in Montgomery county," upon or along the Clarksburg Road between Burdette and Boyd for a distance of about 1.33 miles, will be received by the Commissioners of Montgomery County at their office, Rockville, Maryland, until 12 o'clock noon of the 15th day of June, 1915, and at that time and place will be publicly opened and read.

All bids must be made upon blank forms to be obtained of the State Roads Commission at its office, 601 Garrett Building, Baltimore, Maryland, must give the prices proposed both in writing and in figures, and must be signed by the bidder, with his address.

Each bid is to be accompanied by a certified check for two hundred dollars (\$200), payable to the Treasurer of Montgomery county, said check to be returned to the bidder unless he fails to execute the contract should it be awarded to him.

Plans can be seen and forms of specification and contract may be obtained on cash payment of one (\$1) dollar at the office of the State Roads Commission, Baltimore, Maryland.

The Commissioners of Montgomery County reserve the right to reject any and all proposals.

RICHARD T. WHITE, JR., President.  
BERRY E. CLARK, Clerk.

# PROPOSALS

SEWERS

WATER-WORKS

ELECTRIC LIGHT PLANTS

BRIDGES

## Road Construction—Volusia Co., Florida

DeLand, Fla.

Sealed proposals will be received by the Board of County Commissioners of Volusia County, Fla., at the office of the County Court Clerk, in the Courthouse at DeLand, Florida, until 2 o'clock P. M. Wednesday, June 30, 1915, for the construction of approximately 35.56 miles of roadways in the Second Commissioner's District of said county, at which time the said proposals will be opened and publicly read. The proposals are received for the purpose of determining the type and character of pavements to be used and for the purpose of arriving at an accurate amount as to the cost of the improvements.

The work includes the furnishing of all labor, material, except as stated in the specifications, machinery and equipment of every kind necessary for the paving, grading, hard surfacing, or otherwise improving said roadways according to the plans and specifications.

The approximate list of quantities may be obtained from the office of the Engineers, or from the Clerk of the Board of County Commissioners, or from the County Commissioner of the district interested.

Bids will be received on the following surfacing for roads: Brick flat, sand filler; Brick flat, grout filler; Sheet Asphalt; Asphaltic Concrete; Modified Asphalt; Asphaltic Macadam, and Shell. The type of surfacing to be used over all, or any section, or sections, of the roads will be determined after bids are submitted.

Each bid must be accompanied by an acceptable bond in the sum of 5 per cent. of the amount bid, guaranteeing to the Board that the same bid will be submitted and that the bidder will enter into a contract with the Board after the type of surfacing material has been adopted and the work readjusted, it being distinctly understood that the bids submitted under this advertisement are tentative and made with a view of assisting the Board in determining what work will be done under the appropriation to be available.

Plans and specifications may be seen at the office of the County Court Clerk at DeLand, Fla., or at the office of the Engineers. Specifications may be obtained from the County Court Clerk or the Engineers. Copies of plans may be obtained from the Atlanta office of the Engineers at \$15 per set to cover their actual cost.

The right is reserved to reject any and all bids.

M. M. BOND, Chairman,  
Board County Commissioners.  
SAM'L D. JORDAN, Clerk.  
THE J. B. McCARY CO., Engineers,  
1408-17 Third Natl. Bank Bldg.,  
Atlanta, Ga.  
507 Atlantic Natl. Bank Bldg.,  
Jacksonville, Fla.

## Road Construction

COUNTY COMMISSIONERS' DISTRICT NO. 4, LAKE COUNTY, FLORIDA.

Tavares, Fla.

Sealed proposals will be received by the Board of County Commissioners of Lake County, Florida, at the office of the County Clerk, in the Courthouse at Tavares, Florida, for the construction of a system of roadways in County Commissioners District No. 4, Lake county, until 12 noon June 7, 1915, at which time they will be opened and read publicly. The work includes the furnishing of all labor, material and machinery and equipment of every kind necessary to construct the roadways according to plans and specifications. The approximate quantities are as follows:

98,973 lineal feet roadway  
25,988 cubic yards excavation  
112,024 square yards modified asphalt pavement.  
7 bridges to be raised.  
60 12" drains.  
19,022 cubic yards concrete.  
500 pounds steel.

Each bid must be accompanied by a certified check on a State or national bank of Florida, or a national bank of any other State, for 5 per cent. of the amount bid, drawn to the order of the County Clerk, H. H. Duncan.

Plans and specifications may be seen at the office of the County Clerk or the Engineers. Specifications may be obtained from the County Clerk or the Engineers. Copies of plans may be obtained from the Engineers at \$15 per set to cover their actual cost.

The desire of the Board is to let the contract in as large sections as possible.

The right is reserved to reject any or all bids.

M. V. SIMPSON, Commissioner.  
H. H. DUNCAN, Clerk.  
THE J. B. McCARY CO., Engineers,  
1408-17 Third Natl. Bank Bldg.,  
Atlanta, Ga.

## Road Construction—Volusia Co., Florida

DeLand, Fla.

Sealed proposals will be received by the Board of County Commissioners of Volusia County, Fla., at the office of the County Court Clerk, in the Courthouse at DeLand, Fla., until 2 P. M. Wednesday, June 30, 1915, for the construction of approximately 17.47 miles of roadways in the First Commissioner's District of said county, at which time the said proposals will be opened and pub-

licly read. The proposals are received for the purpose of determining the type and character of pavements to be used and for the purpose of arriving at an accurate amount as to the cost of the improvements.

The work includes the furnishing of all labor, material, except as stated in the specifications, machinery and equipment of every kind necessary for the paving, grading, hard surfacing, or otherwise improving the said roadways according to the plans and specifications.

The approximate list of quantities may be obtained from the office of the Engineers, or from the Clerk of the Board of County Commissioners, or from the County Commissioner of the district interested.

Bids will be received on the following surfacing for roads: Brick flat, sand filler; Brick flat, grout filler; Sheet Asphalt; Asphaltic Concrete; Modified Asphalt; Asphaltic Macadam, and Shell. The type of surfacing to be used over all, or any section, or sections, of the roads will be determined after bids are submitted.

Each bid must be accompanied by an acceptable bond in the sum of 5 per cent. of the amount bid, guaranteeing to the Board that the same bid will be submitted and that the bidder will enter into a contract with the Board after the type of surfacing material has been adopted and the work readjusted, it being distinctly understood that the bids submitted under this advertisement are tentative and made with a view of assisting the Board in determining what work will be done under the appropriation to be available.

Plans and specifications may be seen at the office of the County Court Clerk at DeLand, Fla., or at the office of the Engineers. Specifications may be obtained from the County Court Clerk, or the Engineers. Copies of plans may be obtained from the Atlanta office of the Engineers at \$15 per set to cover their actual cost.

The right is reserved to reject any and all bids.

M. M. BOND, Chairman,  
Board County Commissioners.  
SAM'L D. JORDAN, Clerk.  
THE J. B. McCARY CO., Engineers,  
1408-17 Third Natl. Bank Bldg.,  
Atlanta, Ga.  
507 Atlantic Natl. Bank Bldg.,  
Jacksonville, Fla.

## Water-Works

Dadeville, Ala.

Bids received until June 7 for machinery and supplies and construction. Equipment to comprise: Two independent motor-driven pumps, with motors direct connected, capacity each 125 gallons per minute against 280 foot head. One concrete reservoir, 30,000 gallons. One 80,000-gallon elevated tank and tower, steel or concrete, 110 ft. high. One thousand feet 8-inch and 9000 feet 6-inch standard C. I. water main. Two thousand to four thousand feet 2-inch and 1½-inch galvanized pipe. Twenty standard fire hydrants.

Address H. E. Berkstresser, Mayor, or James R. Hall, Engineer, Dadeville, Ala.

## Proposal for Extending Sewers and for a Sewage Disposal Plant

Winston-Salem, N. C.

Sealed proposals will be received by the Committee on Sewers of the Board of Aldermen of Winston-Salem, N. C., until 4 o'clock P. M. June 13, 1915, for building a Sewage-Disposal Plant, Reinforced Concrete, and for extending main sewer lines thereto a distance of 2½ miles, of 24 and 30-inch pipe sewers in shallow trench. The right is reserved to reject any or all bids.

Plans, profiles, etc., may be seen at the office of the Engineer, or plans of the Disposal Plant can be obtained upon payment of \$3.

For specifications, forms of proposals, etc., address the Engineer, J. L. Ludlow, Winston-Salem, N. C.

L. F. OWEN,  
Chairman Committee on Sewers.

## Gas Plant

The City Council of the City of Kingston, N. C., will entertain a proposition for the erection of a Gas Plant. Population 1910, 6995; population 1915, 10,000. Address communications to W. B. Coleman, Clerk.

## Dam

Sealed proposals will be received at the office of the City Secretary, Temple, Texas, up to 5 P. M. June 8, 1915, for furnishing material and constructing a gravity dam across the Leon River to be used in connection with the Water-works system of the City of Temple, Texas, in accordance with the plans and specifications on file in the office of the City Engineer, Temple, Texas.

A certified check for \$1000, payable to the order of Mayor of City of Temple, Texas, must accompany each bid.

Anyone desiring to secure a set of plans for personal use in preparing or submitting a bid may obtain the same by application to the Engineer and the payment of \$3 to cover cost of same.

The right reserved to reject any and all bids.

J. T. MARTIN,  
Secretary City of Temple, Texas.

## Fire Hose

Southport, N. C.

City of Southport will receive sealed bids at 8 P. M. June 30, 1915, for 1500 feet rubber-lined cotton-jacket 2½-in. internal diameter hose, and three reels. City reserves the right to reject any or all bids. Address H. P. O'Hagan, City Engineer.

## Electric Franchise

Petersburg, Va.

Sealed bids, addressed to the undersigned, Box 11, Petersburg, Va., and plainly marked "Bid on Electric Franchise—Hopewell, Virginia," will be received until noon of June 31, 1915, on the right or franchise to construct, operate and maintain for a term of 15 years along the streets and alleys at West City Point Subdivision, at Hopewell, near City Point, Prince George Co., Va., electrical apparatus necessary for the furnishing of light, power, heat, telephone, telegraph, etc.

Each bid must be accompanied by a certified check in the sum of \$1000 as evidence of good faith on the part of the bidder.

Bidding-sheet, setting forth certain stipulations to be agreed to by successful bidder, will be furnished upon application.

The right is reserved to reject any or all bids.

P. G. BUNTING, Mgr.

## Steel Wharf Sheds

Port Commission of Jacksonville,  
Office of Chief Engineer.

Jacksonville, Fla., May 15, 1915.

Sealed proposals for the furnishing of material and erection of steel wharf sheds on the Municipal Piers at Jacksonville, Florida, will be received by the Port Commission of Jacksonville until noon June 10, 1915, and then publicly opened.

Information and plans may be obtained at the office of the Engineer of the Commission at Room 314 Realty Building, Jacksonville, Florida.

The Commission reserves the right to reject any or all bids or waive any informalities in bids received.

F. W. BRUCE,  
Chief Engineer.

## Boilers and Appurtenances

New Orleans, La.

Sealed proposals will be received by the Board of Commissioners of the Port of New Orleans at the office, Suite 200 New Orleans Court Building, until June 9 at 8 o'clock P. M., and then be publicly opened, for furnishing and installing three horizontal return tubular boilers, with settings, breeching and appurtenances, to be installed in the Cotton Warehouses and Terminal, located on the east bank of the Mississippi River between Valence and Soniat streets.

Deposit required with proposal, \$500. Bond required with contract, \$3000.

On and after May 22 plans and specifications will be on file at the office of Ford, Bacon & Davis, 921 Canal street, New Orleans, La., where full sets will be furnished to prospective bidders on a deposit of \$25, which will be refunded to bidders submitting proposals. \$15 will be refunded to bidders who do not submit proposals.

The right is reserved to reject any and all bids.

ERNEST M. LOEB,  
President.

## Cranes

New Orleans, La.

Sealed proposals will be received by the Board of Commissioners of the Port of New Orleans at their office, Suite 200 New Orleans Court Building, until June 9 at 8 o'clock P. M., and then be publicly opened, for the furnishing and erecting of fifteen (15) or more Electric Traveling Cranes, two (2) Transfer Cranes, and one Crane Transfer and Elevator, for the Cotton Warehouses and Terminal, located on the east bank of the Mississippi River between Valence and Soniat streets.

Deposit required with proposal, \$3000. Bond required with contract, \$30,000.

On and after May 22 plans and specifications will be on file at the office of Ford, Bacon & Davis, 921 Canal street, New Orleans, La., where full sets will be furnished to prospective bidders on a deposit of \$25, which will be refunded to bidders who submit proposals. \$15 will be refunded to bidders who do not submit proposals.

The right is reserved to reject any and all bids.

ERNEST M. LOEB,  
President.

## Notice To Dredge Contractors

Trenton, Tenn.

Until noon on June 9, 1915, we will receive sealed bids, at the office of the County Court Clerk at Trenton, Tennessee, for excavating by dredgeboat of approximately 1,153,386 cubic yards of earth; to be bid on in two sections and as a whole. For specifications address the undersigned W. W. Powers, County Judge.

Trenton, Tennessee, May 10, 1915.

W. W. POWERS,  
R. K. KILLOUGH,  
K. E. WITHERSPOON,  
Directors Drainage District No. 2,  
Gibson County.

## Notice of Letting Drainage Contract

Holly Hill, S. C.

Take notice that on June 22, 1915, at eleven o'clock, at Holly Hill, South Carolina, the undersigned will let to the lowest responsible bidder the work of constructing the canal for Rum Neck Drainage District. This canal is estimated to be about five miles in length, from three to ten feet wide (bottom width), from two feet two inches to four feet in depth, and the amount of excavation to be fourteen thousand seven hundred forty cubic yards. The canal must be completed within six months of the date of the execution of the contract.

This notice is given under Section 2216, Code Volume I, Laws of South Carolina, and all prospective bidders are notified that this canal must be constructed under the provisions of Article 1, Chapter 32, of the same volume.

M. L. BRELAND,  
DR. S. P. WELLS,  
M. E. SHULER,

Board of Drainage Commissioners  
Rum Neck Drainage District.

## Reinforced Concrete Bridge

STATE OF MARYLAND,  
STATE ROADS COMMISSION.

NOTICE TO CONTRACTORS.

Sealed proposals for building one reinforced concrete bridge (2 98' arch spans) over the Patapsco River along the Baltimore and Washington Boulevard near Elkridge, BALTIMORE AND HOWARD COUNTIES; Contract No. 65Br.

Will be received by the State Roads Commission at its offices, 601 Garrett Building, Baltimore, Maryland, until 12 M. on the 15th day of June, 1915, at which time and place they will be publicly opened and read.

Plans and specifications may be obtained on and after June 8.

Bids must be made upon the blank form contained in the book of specifications. Specifications and plans will be furnished by the Commission upon application and cash payment of \$1, as hereafter no charges will be permitted.

No bids will be received unless accompanied by a certified check for the sum of five hundred (\$500) dollars, payable to the State Roads Commission.

The successful bidder will be required to give bond and comply with the Acts of the General Assembly of Maryland respecting contracts.

The Commission reserves the right to reject any and all bids.

By order of the State Roads Commission this 25th day of May, 1915.

O. E. WELLER,  
Chairman.

WM. L. MARCY,  
Secretary.

## School

Amory, Miss.

Bids will be received by the City Clerk, Amory, Mississippi, until noon June 8, 1915, for the erection of a brick high school building for the city of Amory, Mississippi, according to plans and specifications on file at the Mayor's office. Plans may be had from Ben Price, Architect, 518-19 Empire Building, Birmingham, Ala., upon deposit of \$15, which will be refunded in full to the first five applicants upon return of plans within five days after date of letting; other applicants will be refunded \$10 upon return of plans within five days from date of letting contract. A certified check for \$500 to accompany each bid. Right is reserved to accept or reject any and all bids.

H. L. TSCHUDI,  
City Clerk.

## Water-Works Improvements

Plant City, Fla.

Sealed proposals will be received by the Board of Public Works of Plant City, Florida, at the office of the Clerk, until the fifth day of June, 1915, for furnishing all material and machinery for water-works improvements, at which time they will be opened and read publicly.

The approximate quantities are as follows:

Station Equipment, Plan No. 1.  
1 1,500,000-gallon Compound Condensing Pumping Engine.  
1 300 cubic feet Compound Condensing Two-Stage Air Compressor.  
1 100 H. P. Boiler, steel casing.  
1 200 H. P. Open Heater.  
1 Feed Pump.  
1 Air Lift.

Station Equipment, Plan No. 2.  
2 50 H. P. Oil Engines, direct connected to 2 500 G. P. M. Triplex Pumps.  
1 50 H. P. Oil Engine, belt connected to 1 300 cu. ft. Two-Stage Air Compressor.  
1 10,000-gallon Steel Oil Storage Tank.

Station Equipment, Plan No. 3.  
1 100 H. P. Oil Engine, direct connected to 1 1000 G. P. M. Triplex Pump.  
1 10,000-gallon Steel Oil Storage Tank.

Each bid must be accompanied by a certified check for five per cent. of amount bid, drawn to the order of J. L. Young, Chairman.

Specifications may be obtained from E. W. Mays, Superintendent Water-works, Plant City, Fla.

The right is reserved to reject any or all bids.

J. L. YOUNG,  
Chairman Board of Public Works.



## INDUSTRIAL NEWS OF INTEREST

Items of news about industrial, railroad or financial interests, building operations, construction work, municipal improvements, or the sale of machinery or the letting of contracts in the South or Southwest, are invited from our readers whether they are advertisers or subscribers or not. We invite information of this character from readers in the North and West about their Southern business operations, as well as from Southern readers. News of value will be published just as readily when from non-advertisers as from advertisers.

### Opens Kansas City Office.

The United States Cast Iron Pipe & Foundry Co. of Burlington, N. J., will open a new office in Kansas City, Mo., at 1404 R. A. Long Bldg. R. C. Clifford, formerly of the St. Louis office of the company, will be in charge.

### E. W. Bliss Company Opens Detroit Office.

In order to give greater convenience to its customers in that territory, the E. W. Bliss Co., Brooklyn, N. Y., announces the establishment of an office in the Dime Bank Bldg., Detroit, Mich. Latest information regarding the company's line of machinery can be secured from engineers at this office.

### Establishes Office in Buffalo.

Increasing business in western New York and Canada of the National Metal Molding Co., manufacturer of electrical conduits and fittings, Pittsburgh, has necessitated the opening of offices by that company at 801-802 Electric Bldg., Buffalo, N. Y. L. S. Montgomery, who has represented the company in the South and other sections a number of years and is especially well known in the electrical trade, will be in charge of the Buffalo office.

### Electrical Supplies and Contracting.

An electrical supply and contracting firm has been organized at Moultrie, Ga., under the name of the Moultrie Electric Co., with J. L. Griffin manager and R. C. Leonard electrician. Manager Griffin announces his company will establish a modern electric supply and contracting shop at that place, in which will be carried a general line of fans, manufactured by the Western Electric Co., 463 West St., New York; motors, fixtures, glassware, etc.

### New President of Fairbanks, Morse & Company.

At the annual directors' meeting of Fairbanks, Morse & Co., 900 South Wabash Ave., Chicago, C. H. Morse, Sr., retired from the office of president of the company, which he had held for twenty-four years, and C. H. Morse, Jr., was elected in his place. Mr. C. H. Morse, Jr., has for a number of years been president of the Fairbanks-Morse Manufacturing Co. of Beloit, Wis., which office he will continue to hold.

### Increases Capital Stock.

Jackson Iron and Bronze Works, Jackson, Tenn., have applied for charter amendment to increase capital stock to \$50,000. In addition to a complete line of ornamental work in steel, iron and bronze, including grills, wickets, elevator cages, balcony railings, stairs, fire escapes, etc., the company will handle mill supplies and undertake general foundry and repair work. I. A. Rainey, who has had large manufacturing experience in the city of Jackson, is general manager of the works.

### Annual Stockholders' Report.

Mr. Waddill Catchings, president of the Central Foundry Co., New York, in submitting recently the annual report to the stockholders of the company, said: "The Holt (Ala.) foundry of the Central Foundry Co. is operating in a satisfactory manner and will from now on largely contribute to the profits of the company. During the month of April a marked improvement in the business of the company was noted, but continued improvements are necessarily dependent upon the general conditions.

### Westinghouse Mazda Lamps.

Mazda "C" lamps for 220 to 250 volts, manufactured by the Westinghouse Lamp Co., 1261 Broadway, New York, are now produced in sizes from 200 to 1000 watts. Heretofore these mazda "C" lamps, which are claimed to be the latest development in incandescent lamps and the most efficient lighting units available, have been supplied only for 105 to 125 volts. The manufacture of this type of lamp has progressed so rapidly, however, that the Westinghouse Lamp Co. is now able to furnish them for the higher voltages.

### New Architectural Company for Washington.

F. R. White, formerly with Harry Wardman, 1430 K St. N. W., Washington, D. C., has organized the new architectural and engineering firm of F. R. White & Co., with offices at 502 Real Estate Trust Bldg. He has for the past several years designed and superintended the construction of all buildings erected by Mr. Wardman, which include some of the largest apartment-houses and other extensive buildings of that city. Mr. White is succeeded in Mr. Wardman's office by M. A. Schneider & Co.

### Terry Steam Turbine Appointments.

Hawkins-Hamilton Co., People's National Bank Bldg., Lynchburg, Va., has been appointed by the Terry Steam Turbine Co. of Hartford, Conn., as its representative in the State of Virginia. Announcement is also made that Merton A. Pocock, 409 Endicott Bldg., St. Paul, Minn., will act as district sales manager for the territory included in the States of Minnesota, North Dakota and South Dakota. This arrangement supercedes the company's previous selling agreement with the Robinson, Cary & Sands Co. of St. Paul.

### Now Receiving Bids.

Bids from general contractors on St. Elizabeth's Hospital, to be erected in New Hartford, N. Y., will be received until noon June 10, 1915, by the architect, T. P. Barnett Co., Central National Bank Bldg., St. Louis, Mo. The building will be 140x200 feet, 4 stories, fireproof construction, and is to cost approximately \$250,000. T. P. Barnett Co. reports awarding recent contract to Griffiths & Pierce, 618 Charlotte St., Utica, N. Y., for the erection at that place of the 6-story reinforced concrete Martin Hotel, costing \$150,000, for William Martin, Utica.

### Installing Additional Equipment.

Development of the scrap-iron industry during the past few years is said to be due to the fact that consumers are coming to depend largely on getting their scrap iron put into shape so that it can be readily used without further fabrication. This line of manufacture has been entered into extensively by the Hyman-Michaels Co., People's Gas Bldg., Chicago, at its East Chicago, Ind., yards. The company has also established a well-equipped plant in the St. Louis district at Adelaide and Bulwer Aves. In addition to a number of shears, acetylene cutting apparatus, and contrivances for sorting, cutting and testing materials, a roll plant for the handling of new and relaying rails is being installed at this place.

### Distributing Agency Organized.

The Southern G-F Co., Third National Bank Bldg., Atlanta, which was recently formed with J. H. Deering president, L. Aronstam vice-president and treasurer, and A. W. Clarkson secretary, is to be the Southern distributor for the General Fireproofing Co. of Youngstown, O. Mr. Deering has been the local representative of the General Fireproofing Co. in Atlanta for two and a half years. Mr. Aronstam was formerly the representative of the same company in Columbia, and with his associates they will handle the business of the fireproofing department for South Carolina, Georgia, Florida, Alabama and Tennessee. In addition to this they represent several other companies, viz.: The Concrete Steel Co., 32 Broad St., New York; Dietrich Bros. of Baltimore, and the Dow Wire and Iron Works, Louisville, Ky. They report business as improving and feel very much encouraged at the outlook.

### Coal Mine Leases and Equipment for Sale.

Mining equipment, machinery, buildings and coal land leases, amounting to 1280 acres of the Dow Coal Co., Savanna, Okla., will be sold at auction on June 22, 1915, at McAlester, Okla. Machinery and equipment consists of 5 boilers, 4 hoisting engines, 1 Sullivan high-speed fan, 1 coal-washing plant, pipes, tools, 125 pit cars and miscellaneous supplies pertaining to coal-mining

operations. The property will be sold in whole or in part. The coal is of the McAlester vein, and with present development it is said the mine will produce 400 tons daily, and the equipment now installed will take care of additional tonnage to 600 tons. Further information regarding the sale and property may be obtained by addressing Harry C. Clark, trustee, McAlester, Okla.

### Reports Business Activity.

In the last two weeks the Vilter Manufacturing Co., Milwaukee, Wis., states that orders have been received for refrigerating apparatus amounting to about 5 carloads from Russia, another order from Japan amounting to about 8 carloads, and an order from China for about 10 carloads. In addition to these sales, over 49 have been made recently in the United States, including the following installations in the South: Menger Hotel, San Antonio, Tex., improvements to plant, consisting of 6 coils condenser 14 feet long and 6 pipes high, one 11-inch cast-iron propeller with stuffing-box sleeve and pulley and one low-pressure ammonia gauge; Imperial Ice Cream Co., Parkersburg, W. Va., 25-ton refrigerating plant; Haskell (Tex.) Ice & Light Co., 242 ice cans of 300 pounds capacity each, one single automatic wooden ice dump and one automatic can filler; Port Arthur (Tex.) Ice & Refrigerating Co., improvements to plant of 12 coils atmospheric ammonia condenser, each 18 pipes high and 20 feet long, and the Tropical Ice Co., New Orleans, La., a 10-ton refrigerating plant.

### Galvanized Sectional Buildings.

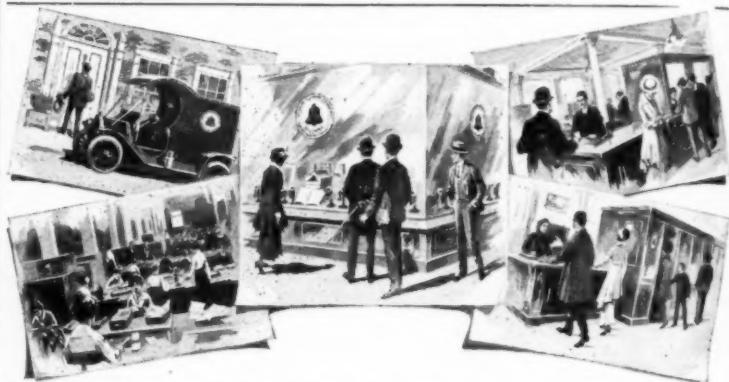
Harry Bros. Co., New Orleans, La., is one of the pioneers in the manufacture of galvanized-iron culverts, cisterns, garages, houses, tanks for all purposes, silos, troughs,

etc. For the past two years this company has been manufacturing unique portable galvanized sectional houses especially adapted for warehouses, grain storage and factory buildings, making them in sizes from 50 to 100 feet or larger as desired. In order to have them more complete than heretofore, the company is now standardizing these buildings. As an object lesson a 50x124-foot addition has been built to its own plant and several have been shipped to other sections. No experienced labor is required to erect them, as they are so constructed any ordinary individual can put them together. The present plant of the company, which is built entirely of galvanized iron, covers about two acres and contains spacious and attractive rooms. During the general depression in business the opportunity was taken to put in new equipment, and additions were made to the plant. This firm reports that business is improving and expects it to continue to improve. Attractive booklets and catalogues descriptive of the products manufactured by the Harry Bros. Co. are issued and will be sent to interested persons upon request to the company.

### TRADE LITERATURE

#### Economy Geared Turbines.

Kerr Turbine Co., Wellsville, N. Y., is distributing Bulletin No. 51, which explains the great advantages often obtained by interposing gears between turbine and driven generator, pump, blower or pulley, and also explains the new method by which "Economy" turbine gears are so accurately hobbled that no grinding or polishing is necessary for finish. Gears made in the Kerr shops are said to be so quiet in operation that the gears of an "Economy" geared turbine really



## Doing Business with a Business Concern

The business man is an important factor in your daily life and happiness.

He may raise wheat or cattle; he may manufacture flour or shoes; he may run a grocery or a dry-goods store; he may operate a copper mine or a telephone company. He creates or distributes some commodity to be used by other people.

He is always hard at work to supply the needs of others, and in return he has his own needs supplied.

All of us are doing business with business men so constantly that we accept the benefits of this intercourse without question, as we accept the air we breathe. Most of us have little to do with government, yet we recognize the difference between business methods and government methods.

We know that it is to the interest of the business man to do something for us, while the function

of the government man is to see that we do something for ourselves—that is, to control and regulate.

We pay them both, but of the two we naturally find the business man more get-at-able, more human, more democratic.

Because the telephone business has become large and extensive, it requires a high type of organization and must employ the best business methods.

The Bell System is in the business of selling its commodity—telephone service. It must meet the needs of many millions of customers, and teach them to use and appreciate the service which it has provided.

The democratic relation between the customer and the business concern has been indispensable, providing for the United States the best and most universal telephone service of any country in the world.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY  
AND ASSOCIATED COMPANIES  
One Policy      One System      Universal Service

make no more noise than the windage of a direct-connected outfit. Copy of this bulletin will be sent on request.

#### Nonpareil Insulating Brick.

Armstrong Cork & Insulation Co. of Pittsburgh is issuing a booklet on Nonpareil insulating brick for furnaces and ovens entitled "Good Furnaces Made Better." A full description of the necessary requirements of insulating brick, their resistance to high temperatures, insulating efficiency, crushing strength, etc., are given in the booklet.

#### Emergency Wireless Equipment.

Bulletin No. 149, entitled "The Exide Battery for Marine Wireless Service," has recently been published by the Electric Storage Battery Co. of Philadelphia. It contains a general description, with illustrations, of the "Exide" battery equipment as used for wireless service, together with information on wireless equipment and the value of storage batteries in marine service when used for emergency purposes.

#### Waco Wood and Metal Preserver.

A pamphlet issued by the Waco Manufacturing Co., Montgomery, Ala., describing its wood and metal preserver for protecting iron and steel against corrosion and sap or soft wood from the weather, is being distributed by the company. The preserver is applied hot, producing a thin liquid that is claimed to penetrate and fill the pores of the material under treatment. It is applicable for use on iron bridges, silos, roofing of all kinds, concrete and brick walls, and, in fact, all iron and steel construction and wooden products.

#### Heating Boilers.

Views of prominent buildings heated by "Gem City" boilers made by the Gem City Boiler Co., Dayton, O., are given in Bulletin 101, entitled "Heating Boilers," which is issued by Morton McI. Dukehart & Co., 100-102 W. Fayette St., Baltimore. Some of the larger buildings illustrated include: Army and Navy Club, Capital Park Hotel and Emergency Hospital of Washington, and the Hippodrome Theater, Public School No. 60 and Esplanade Apartments of Baltimore. Morton McI. Dukehart & Co. are exclusive factory representatives for high-pressure boilers, heating boilers of all kinds, stacks, tanks, automatic stokers, steam, power and

centrifugal pumps, compressors, water-wheels, steam and gas engines, generators, motors, electrical equipment, oiling systems, regulating valves, etc.

#### Gifford-Wood Wagon Loaders.

Bulletin No. 16, issued by the Gifford-Wood Co., Hudson, N. Y., describes and illustrates portable power wagon loaders designed and built by the company for handling hard and soft coal; also crushed stone, gravel, sand and other materials of this nature. Type "A" and "A-1" portable loaders, type "B" and "B-1" portable loaders for handling hard and soft coal, and type "C" portable loader for handling small coal are illustrated and described in detail in the bulletin. For 100 years the Gifford-Wood Co. has been fabricating sheet and structural steel and manufacturing elevating and conveying machinery of all kinds.

#### Gravity Spiral Conveyors.

Interfloor movement of merchandise by gravity is broadly discussed in a catalogue issued by the Otis Elevator Co. of New York, in which the economical and efficient systems of production and delivery inaugurated through the use of gravity conveyors emphasize the importance of this subject to manufacturers and others handling package goods. Otis gravity conveyors for lowering package merchandise and boxed, cased, bagged and barreled goods are illustrated and described in detail. Ten typical systems used in ten different lines of business for lowering goods on the Otis gravity spiral conveyor are fully illustrated and described in the catalogue.

#### Corrugated Galvanized-Concrete Fence.

A new type of fence of corrugated galvanized concrete construction which has been developed by the American Sheet & Tin Plate Co., Pittsburgh, is described and illustrated in a pamphlet issued by the company. This fence is especially adapted for enclosing manufacturing properties and other industrial operations where attractive appearance, efficiency against trespass and durability are required. Full construction details of the fence, with illustrated drawings showing the method of preparing the concrete curbing and posts for supporting the corrugated-metal sheets, are given in the pamphlet.



## DO YOU HANDLE BULKY MATERIALS

SUCH AS

COAL, ASHES, STONE, GRAVEL, SAND, BOXES, BARRELS or SACKS

### GIFFORD-WOOD EQUIPMENTS

Exceed all requirements for doing this work quickly and economically.

MINIMUM MAINTENANCE EXPENSE

**Special Service**—Our Engineering Department places at your disposal, etc., services of experts in this line and all the advice you want is free—Catalogs.

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**GIFFORD-WOOD CO.**

Main Office and Works: HUDSON, N. Y.

New York Chicago Boston

Your chance to open up a new market for your goods in

## SOUTH AMERICA

If interested, write at once to

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RICHMOND, VA.

Personal Representatives in Brazil and the Argentine Republic.

## THOS. W. TROY & COMPANY

EXPORT AND IMPORT COMMISSION MERCHANTS  
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A. W. DUCKETT & CO., Agents 17 Battery Place, N. Y.

Require catalogues and price lists on small machinery and tools for plantations, factories, workshops, etc., supplies and all manufactured articles.

## The Cutler Mail Chute

A recognized necessity in modern buildings of the office, hotel and apartment class.

Send for circulars and full information to the sole makers:

**CUTLER MAIL CHUTE CO.**

Rochester, N. Y.



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## WANTED NEW IDEAS

Send for LIST OF PATENT BUYERS who consult us when purchasing patents. Contains requests from MANUFACTURERS, MAIL-ORDER HOUSES and PROMOTERS for patents secured by us, and suggestions as to New Ideas they wish to purchase. We invite manufacturers and promoters to address our Sales Department regarding the purchase or leasing of a number of meritorious patents secured by us.

## VICTOR J. EVANS & CO.

749 Ninth Street, WASHINGTON, D. C.

We have recently secured the following patents. A copy of any of these patents will be forwarded upon receipt of ten cents. Address all communications to Sales Dept., Victor J. Evans & Co., Washington, D. C.

Emil Thieme, combined curtain pole and window shade brackets.  
J. S. Taylor, flushing apparatus.  
S. H. Wells, fence.  
Fred W. Baker, check holder.  
W. S. Simons, screen attachments.  
L. R. Dehler, calf wanner.  
Dr. V. W. Embree, non-refillable bottle.  
J. E. Dunasky, ticket canceller.  
Mrs. Edna M. Garen, thread-removing implement.  
George W. Hart, sand band.  
S. A. Drake, poultry feeder.  
J. C. Skaliky, wrenches.  
S. W. Swill, rail joint.  
Mrs. J. T. Flaherty, animal trap.  
Samuel W. Taylor, water-gauge g188.  
George W. Thurman, stoves and ranges.  
Minnie F. Crafton, mail packer and carrier.  
R. H. Kleiser, grain-scouring machine.  
L. E. Sparks, garbage-burning furnace.  
M. W. Hampton, automatic train stop.  
Charles C. Fisher, weather strip.  
George J. Carroll, film guards for the film-winding mechanism for moving-picture machines.  
Messrs. Ghinelli & Buchignani, stopping apparatus for motor cars.  
J. S. Gaskins, lubricator.  
Edward H. Galligan, syringe.  
Fountain, Wangers & Winchester, fruit gatherer.  
O. V. Fortney, miners' lamp.  
A. J. Ross, gate.

I. N. Dimm, rail splice.  
Henry Dean, projectile.  
Joseph Butterworth, convertible motor vehicle.  
F. A. Feder, spirit level.  
C. H. Farmer, amalgamator.  
William M. Evans, bumping post.  
W. J. Kistler, system for electrical wiring.  
Fred Kirck, track tie.  
A. F. Houck, stovepipe anchor.  
Thomas B. Hyatt, fluid level indicator.  
Harry Allen, wrench.  
J. E. Anderan, heater for gaseous fluid.  
J. H. Upton, train-stopping apparatus.  
Enos W. Simons, tub attachment.  
R. C. Sharp, metal wagon reachers.  
A. Wood, cultivator attachment.  
Irving Hills, combined hoe, weeder and plant protector.  
John Wm. Cook, rail joint.  
E. T. Schumucker, engine starter.  
John B. Conrad, electric motor.  
H. B. Granger, rake.  
John L. Stevens, phonograph.  
S. T. Szymonka, educational device.  
R. L. Mills, fruit-grading machine.  
Otto Rickmeyer, spark plug.  
William E. Watts, bearings for roof hooks.  
L. A. Jennings, nut lock.  
Nathan Durbin, splice bar.  
Edward H. Kraus, music-leaf turner.  
William W. Stewart, ironing board.  
L. A. Thomas, terminal clip.  
Peter Stauber, slidable bracket.  
George S. Meyers, drill collar.

A. J. Steffensen, attachments for chain tighteners.  
R. S. Mears, water-glass guard.  
Elizabeth and Anne Linton, clamp.  
Henry M. Ferguson, pile driver.  
Charles B. Mills, electric lamp socket.  
Joseph F. Pryor, safety hatpin.  
A. W. Phillips, trail grader.  
Joseph Morheiser, wrench.  
John R. Jones, washing machine.  
Joseph Volz, fanning mill.  
Messrs. Hey & Coffin, match lighter.  
George C. Mottern, bag holder.  
John W. Ryan, rail joint.  
J. L. Wolke, picture hanger.  
W. S. Bunker, road scraper.  
Harry H. Burroughs, garment supporter.  
E. Peterson, belt lifter for bull wheel.  
J. F. Montine, sleigh attachment for auto.  
J. F. Montine, front wheel drive for automobile.  
G. A. Overson, garbage incinerator.  
Messrs. Hart & Carpenter, fluid level indicator.  
Mrs. M. J. Cheeseman, washboilers.  
Oliver Palm, churn operating device.  
V. Benson, bow facing oar.  
P. Cormier, lock.  
R. S. Orm, glue forms and lamps.  
R. W. Welty, pneumatic clutch control.  
Maurice Hayes, ash sifter.  
S. J. Higgins, cultivator.  
Daniel Hilleman, coaling device.  
Edward Jones, demountable rim.  
Mrs. F. M. Colson, cooking utensil.

Carl Berg, cultivator tooth.  
J. N. Silva, kilns.  
H. Staples, screw propeller.  
A. D. Sylvie, bibs.  
J. D. Tipple, furnace fire pot.  
Edward Flanagan, smokehouse and fuel economizer.  
Frederick J. Foll, spring cushion construction.  
James L. Gill, window screen.  
D. C. Oehler, clip.  
Albert Corthaus, drinking founts.  
Messrs. Boser & Matz, non-refillable bottle.  
John Clatt, tire protector.  
M. Arta, knife.  
Alme Benoit, guard finger.  
Jens. P. Pedersen, hub fasteners.  
John F. Fritz, twyers.  
J. W. Olney, sewing needle.  
Joseph Barrere, lid lifter.  
Stephen Bailes, churn.  
Fritz & Craven, bottle closure.  
R. P. Harris, switch box.  
A. B. Harris, tilling machine.  
Robt. R. Gray, reflector.  
Harry Allan, rotary tooth brush.  
H. Alban, pocket.  
Peter J. Bertucci, music leaf turner.  
E. D. Buzard, fruit picker.  
John Butenshon, illuminated sign.  
Joseph G. Akers, globe holder.  
Frank J. Colby, sampler.  
P. J. Cahill, unsinkable ship.  
Robert R. Powers, lock nut.  
Emil Retsiaff, vehicle wheel.



## Special Advertisements of General Interest.

### Sale Of ENOREE COTTON MILLS

Under and by virtue of order of Court of Common Pleas, dated May 3, 1915, in the case of W. S. Montgomery et al, Plaintiffs, vs. Enoree Manufacturing Company, Defendant, I will sell to the highest bidder at public outcry on June 7, 1915, at 12 o'clock noon, at the County Courthouse, Spartanburg, S. C., all of the property, both real and personal, of the Enoree Manufacturing Company, including 720 acres, more or less, in Spartanburg and Laurens counties, and the Cotton Mill thereon, containing 36,000 spindles, with full equipment of machinery and mill village dwellings and tenement-houses, two standard cotton warehouses, brick store, and stock of merchandise, hotel and livery stable. Also, all supplies, live stock, etc., together with the water-power by which the mill is operated in addition to the steam-power plant auxiliary thereto. Also, an undeveloped water-power of 371 acres, more or less, on Tiger River, in Spartanburg county, with certain rights of overflow, including Hills Shoals.

The above property to be sold as a whole for cash. No bid for less than \$350,000 will be considered, and a deposit of \$5000 in cash or a check properly certified by a satisfactory bank in the State of South Carolina will be required before any bid can be submitted.

For further particulars as to the property and terms of sale, reference is craved to the decree on file in said Court.

A. M. LAW,  
Receiver Enoree Manufacturing Co.

Spartanburg, S. C.

### THE WEST POINT ROUTE

### Atlanta & West Point Railroad THE WESTERN RAILWAY OF ALABAMA

Offers excellent locations for  
Truck, Fruit, Stock and General Farming  
Available Factory Sites. Abundance of Raw Material and Good Transportation Facilities  
Write for information.

E. S. CENTER, General Agent, ATLANTA, GA.

**N&W**  
**RY.**

### Newly Equipped Plant in Large Ohio City For Sale or Lease

**N&W**  
**RY.**

There are two large buildings of concrete, brick and corrugated iron construction, having a total floor space of 30,000 square feet. Also, several other smaller buildings, including a foundry, and about six acres of land.

The plant is equipped with machinery for the construction of gas and oil engines, and would be adapted for an allied industry.

Located on rails of line affording good outlet to markets.

For details write to

F. H. LA BAUME, Agricultural and Industrial Agent,  
Norfolk & Western Railway Co.,  
Roanoke, Virginia.

REFERRING TO FILE M-4707.

Manufacturers Record, the Medium for Machinery Advertisements.

### BANKRUPT SALE

The leases of The Dow Coal Company, Bankrupt, located at Savanna, Okla., together with the mine equipment and machinery, consisting of five (5) boilers, four (4) hoisting engines, one (1) Sullivan 8½-ft. high speed fan, one (1) coal washer plant, pipes, tools, 125 pit cars, live stock and all miscellaneous supplies and company buildings used in connection with the operation of said leases as a coal mine, will be sold at public auction at McAlester, Okla., on June 22d, 1915, in compliance with an order of the Referee in Bankruptcy.

Lease No. 1 contains 120 acres with a later addition of 200 acres. Lease No. 2 contains 960 acres, making a total acreage of 1280 acres, more or less. The property will be sold in whole or in parcels as may be for the best interests of the estate. The coal is of the McAlester vein. With present development the mine will produce four hundred (400) tons daily. Equipment will take care of additional tonnage of six hundred (600) tons.

Further information in regard to the sale and property may be obtained from the Trustee.

HARRY C. CLARK, Trustee,  
McAlester, Okla.

### ICE PLANT FOR SALE

For Sale—A 55-ton Ice Plant in one of the larger towns in Texas, running, selling all ice in summer; good business; will give possession any time. Lot 250 ft.; 100 trackage; 3 deep wells; one 35-ton upright "Frick"; one 20-ton "Wolf"; 3 boilers; all pumps in duplicate; three 4-room houses close.

Address D. B.

Care Manufacturers Record, Baltimore Md.

### BRICK PLANT FOR SALE OR LEASE

One of the best located and equipped operating Brick Plants in the Southwest. Manufacturers of vitrified face and paving brick. Matt face a specialty. Located at Ft. Smith, Ark. Trade covers part of four States. Terms can be made to suit a responsible purchaser. Capacity, 75,000 brick per day.

Address BURKE BRICK COMPANY, Ft. Smith, Ark.

### THREE STAVE PLANTS FOR SALE

Located at Pine Bluff, Camden and Ft. Smith, Arkansas. Appraised January 1, 1914, by The American Appraisal Co. at about \$60,000. Will sell all three plants for \$12,000, or will sell plants separately. Address

W. J. ECHOLS, Fort Smith, Ark.

### FOR SALE

Delaware River property; 10 acres of land; buildings erected recently; equipment; plenty of labor; deep water; three railroads; excellent opportunity to purchase a property that can be operated immediately.

W. L. BIRTWELL

Crozer Building

PHILADELPHIA

### 5000 Hydro-Electric Horse-Power

#### FOR SALE

We have to offer any part of 5000 hydro-electric horse-power.

This power is continuously available throughout the year.

Favorable factory sites and transportation facilities.

ADDRESS

St. Lawrence Transmission Co.  
POTSDAM, N. Y.

### SALES AGENCY

In New England territory would like to represent reliable concern in iron or machinery line, straight commission basis. Prompt attention to all inquiries. Have storage facilities—salesmen on road—equipped with business autos. Write for information. Address

VULCAN CO. Allston Sta., Boston

Merchants Looking for Better Location with all conditions in their favor, should write me about new EARLE BUILDING, Birmingham, Ala.—five stories and basement, strictly modern, full fireproof construction, in heart of city, and one hundred feet from best improved corner in the South.

R. A. TERRELL

503 Title Guarantee Bldg. Birmingham, Ala.

## Bargains in Machinery and Supplies.

### Boilers Hoisting Engines Pumps

Every  
Size  
And  
For  
Every  
Duty

HOWARD W. READ CO.

N. W. Corner Third and Arch Streets  
PHILADELPHIA, PA.

#### FOR SALE

- 1 40 H. P. Westinghouse Engine, 25 K. W., 110-volt dynamo.
- 2 New 54" Vertical Boring Mills.
- 3 1" Bolt Cutters.

Detrick & Harvey Machine Company  
BALTIMORE, MD

### VALVES FOR SALE

Five 12" XL Fairbanks Gate Valves, stationary spindle, F. E. Faced and drilled, 3 with standard drilling, 2 with special drilling. All in strictly first-class condition, in use only a few months. Seventy-six 1½" Mueller Radiator Valves, good as new, nickel plating tarnished. Address

ILLINOIS GLASS CO. ALTON, ILLINOIS

### REFRIGERATING MACHINE

4-ton Frick, belt driven, complete, including tank and can. Low price for quick sale.

L. A. GREEN

1511 First Nat. Bank Bldg. Pittsburgh, Pa.

### GENERATING SET

#### FOR SALE

A 62½ K. W. Allis-Chalmers Generator, 240 volts, 200 amperes, direct connected with an Erie City slide-valve 100 H. P. engine, in first-class order and condition. For further information address

THE ROYAL LAUNDRY, Richmond Va.

### PUMPS AND COMPRESSOR FOR SALE

- 1 J. L. Sweigard Compressor, size 14"x15"x3½"x14".....\$250.00
- 1 Worthington Pump, size 16x8½"x10.....125.00
- 1 Blake Pump, size 12x5x12.....100.00
- 1 Gardner Pump, size 10x4x10.....75.00

These Pumps and Compressor are in good condition and ready for immediate delivery.

The Piedmont Iron & Metal Company  
West and Ridgley Streets, BALTIMORE, MD.

### OPPORTUNITIES FOR BUSINESS

Read the list in the Construction Department of this issue of new companies being started in the South. Can't you supply them something?

Manufacturers Record, - - - Baltimore, Md.

## Bargains in Machinery and Supplies.

### STEAM HAMMERS

Single Frame Steam Forging Hammers of all sizes in stock for immediate shipment. Get our prices before buying. They will interest you.

**Erie Foundry Company** ERIE, PA.

### 400 KW. Direct Current Unit Generator FOR SALE

400 KW., type E, Fort Wayne, 125 R.P.M., 10 pole, compound wound, 250 or 550 volts, direct connected to

#### ENGINE

Russell tandem compound, 20" and 35"x27"; also switchboard panel for this unit, including necessary switches, Circuit Breakers, Equalizing Switch and Field Rheostat. This unit is practically new, having been operated only a few weeks. Price \$3500 f. o. b. Sandusky, Ohio.

**GENERAL UTILITIES & OPERATING CO.**  
Munsey Building, BALTIMORE, MD.

### POWER and COAL MINING EQUIPMENT

IN EXCELLENT CONDITION

#### FOR SALE

Direct Current Generating Sets, 250 and 550 volts.  
Boilers, 150 H. P., Return Tubular.  
Feed Water Heaters—Cochrane, Stillwell-Bierce and McGowan.  
Horizontal and Vertical Steam Engines, 5 to 320 H. P.  
Air Compressors—Laidlaw-Dunn-Gordon and Norwalk, capacities 900 cu. ft. to 2100 cu. ft.  
Separators, Steam Traps and Piping.  
Steam Pumps, Piston and Plunger, best makes.  
Mining Equipment. Full list furnished on request.

### NEW RIVER COMPANY

Equipment Sales Department MACDONALD, W. VA.

### TANKS—PIPE

14 10,000-gallon heart cypress tanks, good as new, \$75 each, knocked down, f. o. b. Memphis.

16 6000-gallon heart cypress tanks, good as new, \$50 each, knocked down, f. o. b. Memphis.

10,000 feet 2" tested ammonia pipe, complete, with ammonia unions, 7½ c. ft., f. o. b. Memphis.

**F. G. PROUTT, Trustee**

374 Randolph Bldg. Memphis, Tenn.

Gas Engine, Grain Pressers, Dryer, Bagging Machine, Safe, Scale, Motors, Wagons, etc.

#### FOR SALE

A large gas engine, 14-in. belt; 3 large grain pressers, with conveyors, complete; a large grain dryer, for brewer's grain or fruit; bagging machine; large safe; 5-ton wagon scale; 5 different-sized motors; 10 steel-body back-dump grain wagons, suitable for coal, brick or scavenger.

415 W. Fayette Street  
BALTIMORE, MD.

#### FOR SALE

Angle Roll from 2" to 6".  
Multiple Punch 48".  
Double-end Punch ½" capacity.  
Rail Bender.  
The Huntington Machine & Foundry Co.  
HUNTINGTON, IND.

### 250-volt Generators

FOR SALE

4 200 K. W. 6-pole 800-amp. 250-volt 500 R. P. M. Northern Electric Company Belt-Driven Direct Current Generators, fully equipped with sliding rails, pulleys, switchboard panels, instruments and cables.

1 100 K. W. Westinghouse.  
1 50 K. W. Fort Wayne.  
Now located Olds Motor Works plant, Lansing, Michigan.

Immediate delivery. Special low price.

Address all communications to

**National Machinery & Wrecking Co.**

1916 Scranton Road

Electrical Dept. CLEVELAND, OHIO

### CASH REWARD FOR FIRST INFORMATION

As to the location and leading to the purchase of

**Good Second-Hand Electric Motors**

V. M. NUSSBAUM & CO., Ft. Wayne, Ind.

### FOR SALE AT A BARGAIN

Vertical "Nash" 82 H. P. 3-cyl. Producer Gas Engine, 100 H. P. Traverse City Producer, Scrubber, Air Pump, Air Tanks, very complete outfit in fine shape, running every day. Could in trade use delivery car, roadster or passenger automobile. No junk wanted. What have you?

**WOLTERS BROS.**  
"Crescent Mills" Fremont, Mich.

### ELEVATING GRADER

FOR SALE

Made by the Good Roads Machinery Co. Used a short time only. New elevator belt to go with machine. Original cost \$920. Will sell for \$250 f. o. b. North Wilkesboro.

H. C. LANDON, North Wilkesboro, N. C.

### MACHINERY BARGAINS

1 No. 40 Double Shaving Exhauster, complete with all pipes.  
1 24x4 Four-Sided Planer and Matcher.  
1 42" Band Resaw.  
1 30x7 Whitney Double Surfer.  
2 16" Jointers.  
1 30x7 Whitney Single Panel Planer.  
1 8" Jointer.  
1 Berlin 48" Triple Drum Sander.  
50 24" 80-lb. I Beams, lengths to 39'.  
95 20" 65-lb. I Beams, 19' to 20'.  
65 15" 60-lb. I Beams, 18' to 20'.  
165 15" 60-lb. I Beams, 16' to 22'.  
200 10½" 35-lb. I Beams, 14' to 22'.  
150 tons 12" 35-lb. Sheet Piling.

Write for Free Complete List No. XB-213.

Harris Brothers Company, Owners  
CHICAGO HOUSE WRECKING CO.  
35th and Iron Sts. CHICAGO, ILL.

### ENGINES

#### FOR SALE

On account of changes in our power plant, we will sell the following engines:

One cross-compound condensing Corliss Engine, 18x34x48, rated at 425 H. P., built by Watts-Campbell Co. in 1905.

One cross-compound condensing Corliss Engine, 24x44x48, rated at 725 H. P., built by Watts-Campbell Co. in 1907.

These engines are in good condition and may be inspected while in regular service.

**Forstmann & Huffmann Co.**  
PASSAIC, N. J.

### Motors, Dynamos, Switchboards, Etc.

400 H. P. G. E. Induction Motor, 730 R. P. M., 2200 volts, complete.....\$2000.00  
75 H. P. Westinghouse, slip ring..... 425.00  
75 H. P. G. E., slip ring, new, 850 R. P. M., complete..... 500.00  
50 H. P. Allis-Chalmers, 3-phase, new, 850 R. P. M., complete..... 300.00  
50 H. P. G. E., 2-phase, 850 R. P. M., complete..... 245.00  
35 H. P. G. E., 3-phase, 850 R. P. M., complete..... 215.00  
35 H. P. Westinghouse, 2-phase, 1140 R. P. M., complete..... 200.00  
25 K. W. C. & C. to Watertown engine, 115 volts..... 400.00  
30 K. W. Eddy to New York safety engine, 120 volts..... 500.00  
Large stock of smaller motors and dynamos, both A. C. and D. C. Let us have your requirements.

R. Scheinert & Co., 125 N. Third St., Philadelphia

### AT A BARGAIN

10,000 feet 23" Riveted Steel Dredge Pipe (first-class condition, practically good as new) at 50c. per foot f. o. b. cars, for immediate shipment.

2 1,000,000-gallon D'Auria Pumps (can now be seen working).

1 Ingersoll-Sargeant Straight Line Air Compressor, 22x22½x24.

1 Ingersoll-Sargeant Straight Line Air Compressor, 16x16½x18.

2 Ingersoll-Sargeant Straight Line Air Compressors, 12x16½x16.

PLANTS BOUGHT AND DISMANTLED.

**Boston Iron & Metal Company**  
Baltimore, Md.

### CORLISS ENGINES

10x30 Allis. 2-14x30 St. L. & Mur.  
12x30 Corliss. 13x30 Quiney.  
12x36 St. Louis. 16x30 Murray.  
2 22x42 Hamilton. 28x48 Cooper.  
30x60 H. & B. 32x54 Bass.  
32 & 62x60 Allis Hor. Cross. C. H. D.  
26 & 54x60 Allis Hor. Tand. C. H. D.

### WILSON MACHINERY CO.

419 Pine St.—OTHER SIZES—St. Louis.

### Electrical Equipment FOR SALE

All the electrical equipment in the

### Belt Line Power House

OF THE

**B. & O. R. R.**

Howard and Montgomery Sts.  
BALTIMORE, MD.

Consisting of Engines, Generators, Motors, etc. Inquire on the premises, or of

**LURIA BROS. & CO.**  
READING, PA.

### OUR MONTHLY WAYNE LIST

Mailed from Fort Wayne 10th of each month covers stock of some five hundred machines, including

Machine Tools and Ironworking Equipment, Planing Mill and Woodworking Machinery, Power Plant Equipment, Engines, Boilers, Electrical Units.

Following are miscellaneous examples of high grade equipment now available:

#### CORLISS ENGINES

20x38" Allis-Chalmers, Girder Bed, R. H.  
18x42" Harris, Girder Bed, R. H.  
12x38" Wheelock, Girder Bed, L. H.

#### AUTOMATIC ENGINES

12x15 Skinner, 100 H. P.  
14x18 Erie City, Tangye Bed, L. H.  
12x18 Lansing, L. H.

#### SLIDE VALVE

20x24 Atlas, L. H.  
18x22 H. S. & G., R. H.  
16x24 H. S. & G., R. H.  
16x18 Sinker-Davis Hoosier.  
14x18 Chandler & Taylor, L. H.  
14x18 H. S. & G., R. H.  
13x18 Erie City, C. C.  
12x16 Chandler & Taylor, L. H.  
11x15 Erie City, C. C.  
10x12 Erie City, C. C.  
8x12 Nagle, C. C.  
8x12 H. S. & G., L. H.

#### VERTICAL

9x10 Bartley.  
6½x5½ Westinghouse Double Cylinder.  
6x8 Davis.  
4x6 Willard.  
4x6 Orr & Sembower.  
3x4 Willard.

#### HOISTING

6x8 Freeman, Single Cyl., Single Drum.  
10x12 Lambert, Double Cyl., Double Drum.

#### MACHINE TOOLS

##### Lathes

30x12 New Haven.  
26x20 Lodge & Barker.

Whatever you require in ironworking line, write for our offerings in equipment for immediate delivery.

**WAYNE MACHINERY COMPANY, Taylor St. and L. E. R. R.**  
FORT WAYNE, INDIANA

#### DRILLS

36" Aurora.  
23" Rockford Peerless.  
22" Bickford.  
20" Rockford Peerless.  
20" Aurora.  
No. 50 C. & O. Radial Drill.

#### MISCELLANEOUS

34" Colburn Boring Mill.  
30x48 Lucas Hor. Boring Mill.  
No. 4 B. & S. Universal Miller.  
No. 6 Whitney Hand Miller.  
No. 10 Cincinnati Univ. Div. Head.  
16" Ohio Shaper.  
No. 1 LaSalle Surface Grinder.  
No. 1½ B. & S. Plain Miller.  
No. 1 Bristol Hand Miller.  
No. 1 Wolcott Gear Cutter.  
No. 3 B. & S. 26" Gear Cutter.  
No. 50 Green River Bolt Cutter, Nut Tapper, Pipe Threader and Cutting-Off Machine.

#### PLANERS

36x26x8 Pond Iron Planer.  
26x26x6 Windsor Iron Planer.  
36x26x8 Powell Iron Planer.



## Refrigerating Machine

7-ton York, steam-driven, Refrigerating Machine.

Compressor and engine on same bed plate.

CHEAP

The Assets Purchasing Company  
WHEELING, W. VA.

## FOR SALE

### Complete Steam Electric Power Plant

Big Bargain Before Removing  
to Our Warehouse

- 2 18x18 Skinner Center Crank Self-Oiling Automatic Engines.
- 2 Jeffrey 150 K. W. 250-275-volt Direct Current Belt-Driven Generators. Speed 500 R. P. M.
- 1 5-Panel Switchboard and Instruments.
- 2 18" Double Leather Belts.
- 4 150 H. P. each 72"x18" BUTT-STRAPPED TRIPLE-RIVETED Horizontal Tubular Boilers with Full Flush Fronts, Grate Bars and Fittings.
- 1 600 H. P. Stillwell Open Type Feed Water Heater.
- 2 Suitable Size Single Steam Pumps.

This plant is complete in detail, including all necessary fittings and attachments, and is in excellent condition throughout. Will sell separately at very low prices, but offer an exceptional bargain on the plant complete.

Pfannmueller Engineering Co.

Suite 1733 First National Bank Building  
CHICAGO

## GUARANTEED

### Used Machine Tools

IF INTERESTED IN

LATHES  
DRILLS  
PLANERS  
SHAPERS  
GRINDERS

Write us for descriptions with photographs.

Prentiss Tool & Supply Co.  
NEW YORK

### Cross Compound Corliss Engines FOR SALE

- 2-20x38x48 500 H. P. 80 R. P. M. Hamilton.
- 1-14x26x42 350 H. P. 85 R. P. M. Hamilton.

Above have rope drive wheels. Are in first-class condition.

Price \$25 per net ton.

National Machinery & Wrecking Co.  
1918 Scranton Road  
Electrical Dept. CLEVELAND, OHIO

### MOTORS and DYNAMOS

For Sale or Rent  
A. C. OR D. C., ANY SIZE

We repair and rebuild electrical machinery. Prompt service. Positive guarantees.  
PAN ELECTRIC MFG. CO., 735 S. 4th St., ST. LOUIS, MO

### Special Bargains in Sanders

- 1 42" 3-drum Perfection Sander, thoroughly overhauled.....\$350.00
- 1 48" 3-drum Thomas Sander.....\$400.00
- 1 48" 4-drum H. B. Smith Sander.....\$500.00
- 1 48" 3-drum Royal Invincible Sander, used only 3 weeks.....\$550.00
- 1 54" 3-drum J. A. Fay & Co., fine order.....\$600.00
- 1 60" 3-drum Columbia Sander in A-1 condition.....\$600.00

### JOINTERS

- 1 20" Carrey and Joints.....\$100.00
- 1 30" Russ Extra Heavy Hand Jointer.....\$125.00

Woodworking machinery of all kinds. Write, stating your requirements.  
CLEVELAND BELTING & MACH'RY CO.  
1922 Scranton Road Cleveland, O.

In replacing our manufacturing equipment we find the following first-class

### Used Machine Tools

which we offer at attractive prices

#### ENGINE LATHES

- No. 142-18"x10' Lodge & Shipley Motor-Driven Patent Head.
- No. 136-20"x12' Lodge & Shipley Patent Head.
- No. 49 D-24"x12' Sellers.

#### SPECIAL LATHES

- No. 76-No. 3 Lodge & Shipley Rapid Reduction.
- No. 5302-30"x16' Lodge & Shipley High Speed.
- No. 1306-14"x6' Towsley 4-step Cone Speed.

#### TURRET LATHES

- No. 28-16"x6' Lodge & Shipley 3-step Cone.
- No. 111-22"x7' Lodge & Shipley 3-step Cone, Friction Head.
- No. 122-Two 24"x10' Lodge & Shipley 3-step Cone, Friction Head.
- No. 166-13"x6' Lodge & Shipley Turret.
- No. 101-22"x7' Lodge & Shipley Turret.

#### PLANERS and SHAPERS

- No. A-30"x30"x10' Detrick & Harvey Open Side.
- No. B-36"x36"x12' Niles.
- No. 248-30"x30"x10' Gray.
- No. 219-34"x24"x12' Ohio.
- No. 238-16' Queen City Back Geared.
- No. D 223-26' Smith & Mills Shifting Belt.

#### GRINDERS

- No. 623-No. 16 Landis Plain Grinder.
- No. 660-No. 11 Landis Plain Grinder.
- No. 668-No. 3 Landis Plain Grinder.
- No. 694-No. 24 Landis Plain Grinder.
- No. 696-Rivett Grinder equipped with Heald Internal Head.
- No. 703-No. 1 LeBlond Universal Cutter and Tool Grinder.

#### MISCELLANEOUS

- No. 1352-Bullard Vertical Boring Machine with Turret on slide.
- No. 347-Burke Hand Miller.
- No. 432-Gardam Multiple (four-spindle) Drill.
- No. 482-3-spindle Henry & Wright Sensitive Drill.
- No. 522-Fay 28" Wood Planer.
- No. 690-Marion Bunting Stand for two wheels.
- No. 1097-Bowacher 12"x38" Balancing Ways.
- No. 2005-Ingersoll-Sargent Drill Co. 8"x38" Belt-Driven Double-Acting Air Compressor.
- No. 1690-2"x8' Rockford Straightening Machine.
- No. 1336-Sturtevant Blower. Diameter of outlet, 3 1/2".
- No. 2531-Sturtevant Blower. Diameter of outlet, 3 1/2".
- No. 1326-Two 3" Cleveland Automatic Turret Machines.
- No. 1340-1" Cleveland Automatic Turret Machine.
- No. 1329-2 1/2" Hartford Automatic Screw Machine.
- No. 683-Mueller Grindstone Frame for 4"x27" stone.
- No. C-Diamond Emery Wheel Stand (for two wheels).
- No. D-West Haven Hack Saw (for 6" stock).
- No. E-Pawling & Harnischfeger Horizontal Boring Machine with Bausch 6-spindle attachment.
- No. 1363-12"x40" Mumford Molding Machine.
- No. 1379-Universal Swivel Table for Radial Drill.
- No. D 1356-Diamond Combination Grinding and Polishing Stand.
- No. 1401-Gleason Mitre Gear Tester.
- No. 661-Globe Tool Sharpener for 1/4"x6" wheels.
- No. D 1355-Centering Machine, chuck capacity 2".
- No. 1105-Towsley Mfg. Co. Screw Press; 1'x16" table; height 2'9".

The Lodge & Shipley Machine Tool Co.  
CINCINNATI, OHIO

### Used Motors

This list of motors are all in stock—ready for delivery—are offered as being up-to-date machines—in good working condition—prices quoted represent a large saving over cost of new.

#### DIRECT CURRENT

- 1 30 H. P. 250 volts "Sprague-Lundell."
- 2 10 H. P. 220 volts "Diehl."
- 1 10 H. P. 220 volts "Allis-Chalmers."
- 1 5 H. P. 220 volts "Allis-Chalmers."
- 1 3 H. P. 220 volts "Allis-Chalmers."
- 1 2 1/2 H. P. 220 volts "Westinghouse."

#### ALTERNATING CURRENT

- 1 30 H. P. 2-phase, 60 cycle, 220 volts "Wagner."
- 1 20 H. P. 2-phase, 60 cycle, 220 volts "General Electric."
- 1 12 H. P. 2-phase, 60 cycle, 220 volts "Westinghouse."
- 1 10 H. P. 2-phase, 60 cycle, 220 volts "Allis-Chalmers."
- 2 5 H. P. 2-phase, 60 cycle, 220 volts "Allis-Chalmers."
- 2 5 H. P. 2-phase, 60 cycle, 220 volts "Westinghouse."
- 1 3 H. P. 2-phase, 60 cycle, 220 volts "Allis-Chalmers."
- 1 3 H. P. 2-phase, 60 cycle, 200 volts "Westinghouse."
- 1 2 H. P. 2-phase, 60 cycle, 220 volts "Allis-Chalmers."

Also have a number of direct connected generator sets, belt-driven generator sets, switchboards, miscellaneous steam power equipment, iron and wood working machinery. Send for latest lists.

L. F. SEYFERT'S SONS, Inc.

437 N. Third St. Philadelphia

### THERE IS A REASON

why our properly rebuilt Machinery gives satisfaction

#### ASK US

ENGINES, CORLISS: 18x42 Hamilton; 16x42 Brown; 16x42 Hamilton; 14x42 Hamilton; 14x36 Nagle; 12x30 Hamilton; 10x24 Hamilton.

ENGINES, AUTOMATIC: 21x22 Ridgway; 19x18 Ball; 14x14 Erie; 10x16 Erie Buffalo Compound; 13x12 Ball; 12x14 Green; 12x12 Armstrong & Sims; 10x18 Buckeye; 8x14 Noyes; 8x10 McEwen; 6x6 Harrisburg.

ENGINES, THROTTLING: 20x24 H. S. & G.; 16x18 Ames; 14x14 Lewis, vertical; 13x16 Erie; 12x14 Gibbs; 11x16 H. S. & G.; 10x16 Lane & Bodley; 10x12 new Randle; 8x12 Erie; 8x10 Brownell; 7x10 Union; 6x3 Industrial, vertical; 5x6 Industrial; 3x4 Kriebel.

BOILERS, STATIONARY: HIGH PRESSURE: 1 200 H. P. for 125 lbs.; 2 150 H. P. for 125 lbs.; 1 125 H. P. for 125 lbs.; 3 100 H. P. for 110 lbs.

BOILERS, STANDARD: From 150 to 20 H. P. for 100 lbs.

BOILERS, LOCOMOTIVE FIRE BOX: From 150 to 10 H. P., high and low pressure.

BOILERS, VERTICAL: 60 to 4 H. P., plain and submerged tubular.

GENERATORS AND MOTORS: Belted and direct connected.

MISCELLANEOUS: Heaters, open and closed; pumps, all sizes; sawmills; corn mills and feed grinders; exhaust fans and blowers; woodworking machinery; iron-working tools; leather, rubber and canvas stitched belts; pipe, valves and engine and boiler fittings.

Sole manufacturers of the "Leader" Injector and Ejector. Ask for circular.

THE RANDLE MACHINERY CO.

1734 Powers St., Cincinnati, O.

#### CORLISS ENGINES

- 10x24 Hughes & Phillips.....\$325.00
- 12x36 Allis.....450.00
- 14x36 Hamilton.....500.00
- 16x36 Allis.....550.00
- 18x42 Allis.....620.00
- 20x42 Allis.....650.00

#### DUZETS & SON

Hudson Terminal Bldg. NEW YORK

1 100 K. W. 125-250-volt Sprague Generator, D. C. to 10 and 20x16 Ball & Wood Tandem Semi-Corliss Four-valve Engine. Boilers, Gas Engines, Motors. Tell us what you want.

EDGAR M. MOORE & CO.  
PITTSBURGH, PA.

### HYDRAULIC PRESSES AT A BARGAIN

We have ten Hydraulic Presses, Boomer & Boschert make, designed for 350 tons pressure, extra heavy downward pressure type. These presses have steel beams, steel cylinders and iron platen. Inside diameter of cylinders 20". Diameter of steel rods 4 1/2". Width between rods 72". Movement of ram about 48". Platen 62" square.

These presses were formerly used in fertilizer work. We have sold quite a few of them to be used in other classes of work requiring hydraulic presses. We are selling them cheap in order to move them quickly. If interested, write us for cuts and full description.

#### MACHINE TOOLS

- 1 1/4" Cleveland Standard Automatic Machine.
- 48"x48"x15' Sellers Planer, 2 heads.
- 60" Sellers Vertical Boring Mill, 2 heads.
- 48" Sellers Vertical Boring Mill, 2 heads.
- No. 2 Brown & Sharpe Screw Machine.
- 3500-lb. Bement-Miles Double-Frame Steam Hammer.
- 3500-lb. Bement-Miles Single-Frame Steam Hammer.
- 36"x12" Hess Heavy-Duty Slab Milling Machine.
- 12" Niles Slotter.
- 26"x12" Fildes Lathe, triple geared.
- 6" Cox Pipe Machine.
- 14"x8" Hendey Lathe.
- 10" Bignall & Keeler Pipe Machine.
- 30" Throat Double-End Punch and Shear, weight 3500 lbs.
- D. A. G. No. 5 Ferracute Press.
- 30 new Lathes 14 to 20" in stock; immediate delivery.
- 50"x16" Pittsburgh Machine Tool Co. Lathe, 6" raising blocks.
- 32"x14" Hamilton Lathe.
- No. 4 Williams & White Bulldozer.
- No. 14 1/2 Williams & White Double-End Punch and Shear.
- 16" Back-Geared American Shaper.
- 52" Bridgeport Vertical Boring Mill.

#### POWER EQUIPMENT

- 2 350 H. P. Sterling Water Tube, 150 lbs. steam working pressure.
- 3 250 H. P. Franklin Water Tube, 150 lbs. steam working pressure.
- 1 150 H. P. Babcock & Wilcox Water Tube, 150 lbs. steam working pressure.
- 6 150 H. P. 72"x18" Horizontal Tubular, 125 lbs. steam working pressure.

#### CORLISS ENGINES

- 24"x42" Allis, left hand.
- 18"x42" Watts-Campbell, right hand.

### 2 90 K.W. A. C. Generators

DIRECT CONNECTED

#### WESTINGHOUSE GAS ENGINES

2 90 K.W. Westge. 220-440 Volts, 3 phase, 60 cycle 227 R. P. M. & 2 125 H. P. Westge. 3-Cyl. Vert. Gas Engines, all accessories. Can be seen running. Perfect condition.

H. R. WILSON—419 Pine St., St. Louis, Mo.

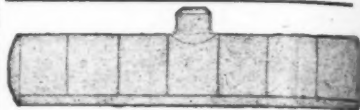
## BOILERS

FOR SALE

1-300 H. P. Vogt Water Tube Boiler, 150 pounds, with Green Stoker and 60"x100" steel stack, used only 18 months.

1-100 H. P. Vogt Hand-fired Water Tube Boiler, 150 pounds, used one year.

HENRY VOGT MACHINE CO.  
LOUISVILLE, KY.



1000 to 8000 gallons overhauled, tested and painted. Prices very low.

"ZELNICKER" in ST. LOUIS

### Water Tube Boiler

FOR SALE

One 150 H. P. Babcock & Wilcox Water Tube Boiler, thoroughly overhauled and inspected by Hartford Steam Boiler Inspection & Insurance Co., with an allowance of 150 lbs. pressure.

KILBY FROG & SWITCH COMPANY

P. O. Box 914

BIRMINGHAM, ALA

2 300 H.P. Westinghouse Gas Engines; vert.; all accessories; \$2500 each  
H. R. WILSON—419 Pine St., St. Louis, Mo.

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35 lb., 4  
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PHILADELPHIA, PA.

# Railroad and Contractors' Equipment and Supplies.

## Georgia Car & Locomotive Company

ATLANTA, GA.

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FREIGHT CARS

PASSENGER COACHES

S. H. Std. Car Trucks for Logging

LARGEST STOCK REBUILT EQUIPMENT IN U. S.

### SIX LOCOMOTIVES FOR SALE

Three-foot gauge, 11½-ton six-wheel Saddle Tank Porter Locomotives. Bought by the Canal Zone in 1910 for \$3000. Have had very little use. Guaranteed in first-class condition. Price \$1100, delivered on dock in New Orleans, Colon or Panama.

For further particulars:

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Cheap Before Removal

No. 4 "Champion" Crusher, Elevator, Screen, Boiler and Engine. Complete outfit. Excellent condition.

### HOWARD W. READ CO.

N. W. Cor. Third and Arch Sts.  
PHILADA., PENNA.

## 20-foot Parson's Trenching Machine

### FOR SALE

One 20-foot Parson's Trenching Machine and all appurtenances.

WRITE

JOHN A. CHAMBLISS

1115 Hamilton National Bank Building  
CHATTANOOGA, TENN.

### CONCRETE MIXERS

1 No. 14 Smith Mixer on steel skids with steam engine, power tilt, batch hopper; capacity, 45 cu. ft. dry.  
1 No. 1 Smith Mixer on skids with steam engine only, standard hopper; capacity, 14½ cu. ft. dry.  
1 12-ft. Koehring Mixer with engine and boiler on steel trucks, with power loader and water tank.

GEORGE B. CURD

Merchants Bldg

Cincinnati, Ohio

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## PIPE

### Second-Hand

All Sizes, ½" to 24"

Furnished with new threads and couplings, suitable for every practical purpose.

Also large assortment of Contractors' Equipment, Hoisting Engines, Boilers, Concrete Mixers, etc.; all thoroughly overhauled.

### Marine Metal & Supply Co.

167 South St. NEW YORK

## RAILS—WAR PRICES

1500 tons 30 to 45 lb., with bars.  
2500 tons 52 to 70 lb., with bars.  
3500 tons 70 to 100 lb., with bars.

Any delivery. Inquire for prices.  
We are always in the market for old railway material and relaying rails.  
HIRSCH ROLLING MILL CO.  
Office and Rolling Mills, St. Louis, Mo.

### A. S. C. E. Sections LIGHT STEEL RAILS

PROMPT DELIVERY.  
8, 12, 16, 20, 25, 30, 35, 40 pounds per yard.  
With Splices and Spikes.

UNITED STATES RAIL CO.  
Manufacturers, Cumberland, Md.  
Certificates of inspection by Hildreth & Co., Inspecting Engineers of New York City, assuring absolutely first quality, furnished free of cost.

### FOR SALE

LOCOMOTIVES, STEAM SHOVELS and RAILS

We have at our shops in Birmingham, thoroughly overhauled, 48 standard and 3 gauge Locomotives.

Also 10 Marion and Thew Shovels.  
Also, 3000 tons of Relaying Rails, all weights. Write us for prices and terms.  
Birmingham Rail & Locomotive Co., Birmingham, Ala.

## Koppel Dump Cars

### FOR SALE

2-ft. Gauge. Portable Track. Steam Drills. Jack Hammers. Drag Scrapers. Small Tools. Stationary and Portable Lead Melting Furnaces. Will be sold at Big Sacrifice.

Write for Price List

THOMAS LEONARD

464 N. Burritt St. New Britain, Conn.

### FOR SALE CHEAP

One Land Pile Driver, 3000-lb. hammer, 50 ways and steel rollers.  
Four Steel-Guyed Stacks, 6'x10'.  
One Steel Self-Supporting Stack, 10'x15'.

CENTRAL TRANSFER CO.

415 N. Front St BALTIMORE, MD.

### Tampa Machinery Exchange

TAMPA, FLA.

Buy, Sell and Exchange Machinery  
of All Kinds

WRITE US YOUR WANTS

### FOR SALE

## PIPE NEW & SECOND HAND

Furnished with Threads and Couplings.  
Suitable for All Practical Purposes

All Sizes in Stock Ready  
for Shipment

Send us your inquiries and get our prices.  
It will interest you.

Eagle Pipe Supply Company, Inc.

45 Broadway N. Y. C.

## Relaying Steel Rails

35 lb., 40-lb., 56-lb., 60-lb., 70-lb., 80-lb.,  
85-lb. and Angle Bars to lay same

Advantageously located for Southern delivery; also other weights of RELAYING RAILS, in different sections of the country; and NEW STEEL RAILS, all weights. We handle first-class Relaying Rails and do not select them from scrap. Let us know your requirements. We buy Rails fit to relaying, and pay spot cash.

ROBINSON & ORR, Pittsburgh, Pa.  
Low Prices on New FROGS and SWITCHES.

### RELAYING RAILS

All Weights With Angle Bars

Send your inquiries to

E. C. SHERWOOD

48 Church St. NEW YORK

### LOCOMOTIVES

30" gauge 1-7x10 Byers geared; 2-9x14 Porters; 5-10x16 Vulcans; Std. gauge 6-wheel switcher, 50 tons, separate tender; 4 10x16 Porters; 42" and 48" gauge Climax, Shays and Davenport.

### STEAM SHOVELS

2 No. 0 Thews ¾-yard traction; 2 No. 14B Bucyrus ¾-yard traction; 3 Model 60 Marion ¾-yard; Marion Models 20, 28 and 31; Bucyrus Models 65, 70C.

### CARS

2, 4, 6, 8, 12-yard 2-way dump; 5-60M Center dumps.

### HOISTING ENGINES

2-drum 2-6½x8 Americans with boilers; 2x10 Mundy and Florys with and without boilers; some have Dake swingers.  
3-drum 7½x10 Mundy, 6½x10 Stroudsburg with swingers and boilers, 10x12 National with boiler.

### BRIDGE ERECTORS HOIST

10x14 Lidgerwood with boiler; 6 spools.  
Ask for our complete list.

**THAW & WILLIAMS**  
BELL BLOCK  
SIXTH & VINE ST  
UNIONTOWN, PA.

### FOR SALE

## RELAYING STEEL RAILS

About 700 Tons, 56 lbs. per yard,

with plates

About 43 Tons, 58 lbs. per yard,

with plates

About 600 Tons, 60 lbs. per yard,

with plates

### New Steel Rails

All Weights.

THE STEEL RAIL SUPPLY COMPANY

2 Rector St. New York, N. Y.

### RELAYING RAILS

20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 80, 85, 90  
and 100 lb., all with Fish Plates

### NEW RAILS

8, 12, 16, 20, 25, 30, 35, 40, 45 lb., at manufacturer's prices.  
LARGE TONNAGES—Carload and less carload lots, advantageously located for Southern delivery.

Splice Bars for any section rail in stock.  
Frogs, Switches, Bolts, Nuts, Spikes, and all Track Accessories.

New and Second-hand Pipe, all sizes, with good Threads and Couplings.

Rebuilt Locomotives, Cars and Equipment. All second-hand materials guaranteed. Subject to inspection during loading, or will ship subject to your approval at destination. Attractive Prices. Quick Shipment.

Before buying write for our bulletin.  
L. R. FOSTER CO., Park Building, Pittsburgh, Pa.

### Locomotives

#### Four wheel type

40 tons; 17"x24"; 160 lbs. pressure

Overhauled  
Modern

M. H. WILSON & COMPANY  
ARCADE BUILDING  
PHILADELPHIA

## RELAYING RAILS FOR SALE

500 Tons 80-lb. Rails.

500 Tons 90-lb. Rails.

Several Locomotives and Cars,

CHAS. HYDE

Commonwealth Bldg. PITTSBURGH, PA.

## RAILS AND LOCOMOTIVES

### RELAY RAILS

LOCOMOTIVES—Narrow and Standard Gauge. 150 Locomotives at our shops, 6 to 80 tons. Freight and Passenger Cars.

Largest Stock Locomotives  
in United States

Southern Iron & Equipment Co.  
ATLANTA, GA.

## RAILS AND ACCESSORIES

NATIONAL STEEL RAIL CO.

I. H. COHN, Pres. and Genl. Mgr.

1030-32 Pierce Bldg. ST. LOUIS, MO.

### The West Va. Rail Co.

HUNTINGTON, W. VA.

Manufacturers Light Steel Rails

12, 16, 20, 25, 30, 35, 40 lbs. per yd.

We are also dealers in Relaying Rails.

All Sizes.

## LACKAWANNA STEEL SHEET PILING. RAILS, LIGHT AND HEAVY SECTIONS. STRUCTURAL SHAPES.

J. E. FRANKS, Agt.

729 Candler Building ATLANTA, GA.

### FOR SALE

One tandem paving roller, in excellent condition. Low price for quick sale. Write

JOHN GORHAM &amp; SONS

Care Manufacturers Record

### Roller and Tractor FOR RENT

For Rent—Ten-ton combined Gasoline Roller and Tractor. Practically new. Address

F. D. HORTON &amp; SON, Houston, Tex.

## USED MOTOR CARS AND TRUCKS

ASK FOR LATEST LIST TODAY

MAR-DEL MOBILE CO.

BALTIMORE, MD.

REFERENCES—BRADSTREET OR DUN.

## RAILS NEW AND RELAYING RAILS RAILROAD BRIDGES and EQUIPMENT

HENRY LEVIS &amp; COMPANY,

26 South Fifteenth Street, PHILADELPHIA

### NEW FIRST QUALITY

## Steel Tee Rails Standard A. S. C. E. Sections Weighing

12, 16, 20, 25, 30, 35, 40, 45, 50 and 60 Lbs. Per Yard

WITH ALL NECESSARY COMPLETE FASTENINGS

Careful Inspection

Prompt Shipments

Your Inquiries Solicited

## SWEET'S STEEL COMPANY.

Mills and General Offices

Philadelphia Office

WILLIAMSPORT, PA.

New York Office

LAND TITLE BUILDING 1123 BROADWAY

Positively the Largest Independent Manufacturers of Light Section Steel Rails in the United States



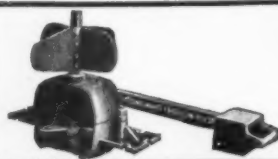
# OLIVER DUMP & SPREADER CARS

THE WM. J. OLIVER MFG. CO.

(Dumps by Air or Hand)

Only AIR DUMP CAR under absolute control of operator. Can be brought back to upright position, after passing center of gravity, before entire contents of car have been unloaded. This admits of equal distribution of material on both sides of track. Write.

KNOXVILLE, TENN.



## FROGS, SWITCHES, CROSSINGS

Portable and Industrial Track

THE CINCINNATI FROG & SWITCH COMPANY

Manufacturers

(1)

CINCINNATI, OHIO



## FROGS, SWITCHES

Crossings, Switch Stands and Rail Braces

CONLEY FROG & SWITCH COMPANY

Memphis, Tenn.

THE WEIR FROG CO.

Manufacturers of

Frogs, Switches, Crossings, Rail Braces, etc.

CINCINNATI, O.

THE AMERICAN FROG & SWITCH CO., Hamilton, Ohio  
FROGS, SWITCHES, SWITCH STANDS, RAIL BRACES

### FOR SALE

Two ten-ton gasoline macadam rollers, latest types, standard makes, nearly new. Write.

JOHNSON BROTHERS  
Care THE MANUFACTURERS RECORD

### Black Gum WOOD ROLLERS

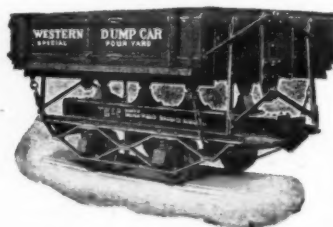
FOR CONTRACTORS AND HOUSE MOVERS

Tougher and more lasting than any Maple Roller on the market.

O. O. OGDEN  
613 Roumain Building, Baton Rouge, La.

## Don't Say—

"I Cannot Find a Car Strong Enough"



when you have a job that the ordinary car would easily "break up" on. The Western Special 4-yard car is just the one you are looking for. It is designed and built for the hardest kind of continuous work. Only thoroughly tested material used. Every place that the least strain comes is strongly reinforced. We have that car "strong enough."

Write for special illustrated catalog.

WESTERN WHEELED SCRAPER COMPANY  
AURORA, ILLINOIS

EARTH AND STONE HANDLING MACHINERY

## Contractors' Plant For Sale

1 Marion Revolving Steam Shovel, Model 31, 3/4-yard dipper, mounted on traction wheels. Shop No. 2851. Practically as good as new. Price \$3250.  
1 Marion Revolving Steam Shovel, Model 30, 3/4-yard dipper, mounted on trucks. Excellent condition and ready for work. Price \$2800.  
1 Marion Steam Shovel, Model 20, 1 1/4-yard dipper. Good working condition. Extra cable, etc. Price \$2500.  
12 Western Rotary Dump Cars, 1 1/2 yards. Price \$30 to \$50 each.  
36 Western Dump Cars, 2 yards. Price \$25 to \$50 each.  
6 Dump Cars, good as new. Price \$35 each.  
24 National Dump Wagons. Price \$20 each.  
70 Tons 20-lb. Steel Rails. Price \$20 per ton.  
All located on Norfolk Southern Railroad near Norwood, N. C.  
Terms on steam shovels and cars.

ROBERT L. SMITH,

ALBEMARLE, N. C.

Established 1866

Incorporated 1905

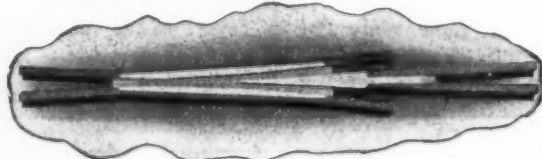
Plates—Tank, Boiler and Fire Box

Structural Steel

Bolts, Spikes, Pig Iron

Steel Rails—New and Relaying

Complete Line of Road Building Machinery—Mixers, Crushers, Engines, Pumps, Etc.



## Frogs, Switches and Crossings

AGENTS FOR

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WHEELING MOLD & FOUNDRY CO.  
MUNICIPAL ENGINEERING & CONTRACTING CO.  
PULASKI IRON CO.

R. C. Hoffman & Company

(Incorporated)

Continental Bldg.  
BALTIMORE, MD.

Candler Bldg.  
ATLANTA, GA.

## The New Era Elevating Grader



The New Era has been on the market for over fifty years and has played a leading part in earth handling projects throughout the United States, Canada and numerous foreign countries. The New Era can be furnished in three different styles to suit varied conditions. Disk or mould board plows are furnished as desired.

Austin Gyratory Crushers are built in eight sizes with either "Suspended" or "Supported" shaft, capacities ranging from 50 to 5,000 tons per day. Quarrymen, cement makers, mines and railroads are the most discriminating and exacting purchasers of this class of machinery. Their expressions of satisfaction with the Austin Gyratory are the most convincing evidence of its excellent qualities.

THE AUSTIN MANUFACTURING  
COMPANY

Chicago, Ill.

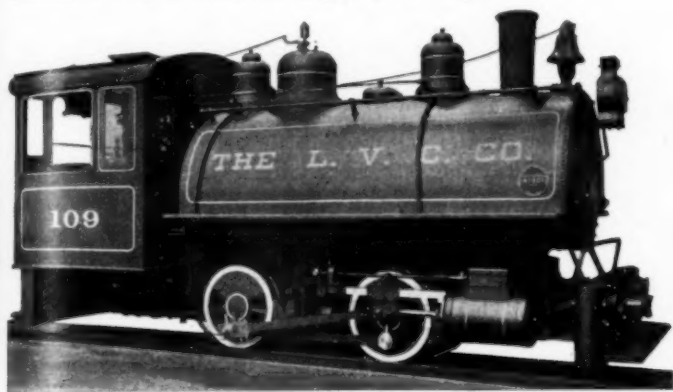
New York Office:  
50 CHURCH STREET

Canadian Agents:  
MUSSEN'S Ltd., MONTREAL



# BALDWIN

industrial and contractors' locomotives are built for the most strenuous kind of work, and *they stay on the job.*



Built for The Lehigh Valley Coal Co.

The illustration shows a contractors' design of locomotive, adapted to industrial switching service. This locomotive is of 3' 6" gauge, and weighs 19½ tons. Strong frames and bumpers, a large boiler, and ample water capacity, are a few of its good features.

Further particulars on request.

## The Baldwin Locomotive Works PHILADELPHIA, PA., U. S. A.

Cable Address, "BALDWIN PHILADELPHIA"

Represented by

Charles Riddell, 625 Railway Exchange, F. W. Weston, 50 Church Street, New  
Chicago, Ill. York, N. Y.  
C. H. Peterson, 1610 Wright Building, George F. Jones, 407 Travelers Building,  
St. Louis, Mo. Richmond, Va.  
A. Wm. Hinger, 722 Spalding Building, Portland, Ore.

# "PORTER LOCOMOTIVES"



## STEAM AND COMPRESSED AIR

For all Gauges of Track and Every Variety of Service, including Mine, Furnace, Lumber, Plantation, Industrial and Contractors' use. Locomotives 36" and 56½" Gauge on Hand for Immediate Delivery.

H. K. PORTER COMPANY 412 Wood St. PITTSBURGH, PA.

# LIMA LOCOMOTIVES



## YARD OR CONTRACTORS' ENGINES.

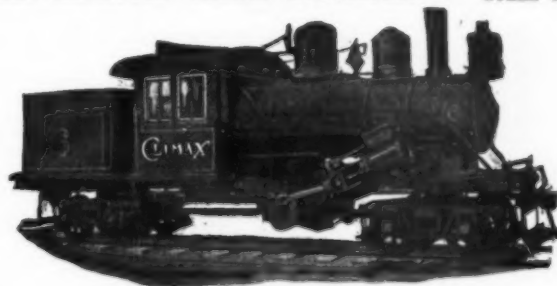
Six wheels coupled. Power and large distribution of weights, combined suitable for open surface mining. Write for particulars.

## BRANCH OFFICES

NEW YORK—50 Church Street. NEW ORLEANS—Woodward, White Co., Ltd.  
CHICAGO—520 McCormick Building.

Lima Locomotive Corporation, Lima, Ohio

# CLIMAX IMPROVED GEARED LOCOMOTIVES FOR WOOD AND STEEL RAIL



## GET CATALOG H

CLIMAX MANUFACTURING CO. 311 West Main St., CORRY, PA.  
C. T. Patterson Co., New Orleans

## BRANCHES:

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New Orleans, 208 Godchaux Building.  
Pittsburgh, 405 Oliver Building.  
Winnipeg, 45 Canadian Life Block.  
Vancouver, 175 Cordova Street.  
St. Paul, 1308 Pioneer Press Building.  
Seattle, 617 Western Avenue, F. H. Hopkins &  
Co., 236 St. James Street, Montreal, Que.,  
Canadian Representative.



DAVENPORT LOCOMOTIVE WORKS, Davenport, Iowa

# GRINDING MACHINERY of Every Description. Complete Installations.

GRUENDLER PAT. CRUSHER & PULVERIZER COMPANY

924-928 North First Street

ST. LOUIS, MO.

## DIAMOND CORE DRILLING

We can produce a complete core of the softest clay or the hardest flint.



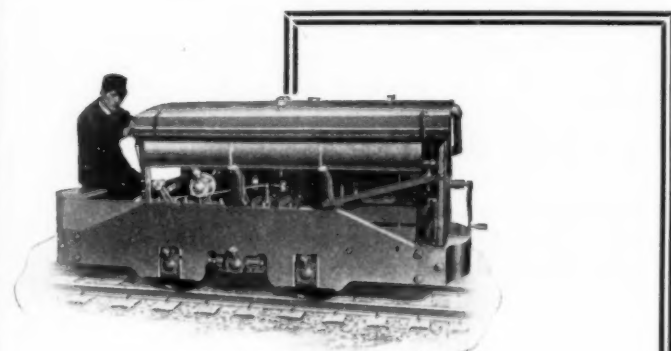
Try us and be convinced. A letter from you will be appreciated.

H. R. AMELING PROSPECTING CO., INTERNATIONAL LIFE BLDG., ST. LOUIS, MO.

Diamond Drill Core Borings for Foundation Testing and Mineral Prospecting  
Send for Book

# HOLES

Any Angle—Any Depth—Anywhere  
Sprague & Hegwood, Inc. Birmingham, Ala. Scranton, Pa.



## Plymouth Gasoline Locomotives

Are invaluable for use in connection with excavating work of every description, mining clay plants, coal handling and in industrial plants of all kinds.

Their construction is simple, and they require little attention. They are efficient, durable and economical.

Built in all sizes from 20" to standard gauge.

Write us today  
for illustrated  
catalog, telling  
all their advantages

The J. D. Fate Co.  
PLYMOUTH, OHIO





## Movable or Multiple Loading Points

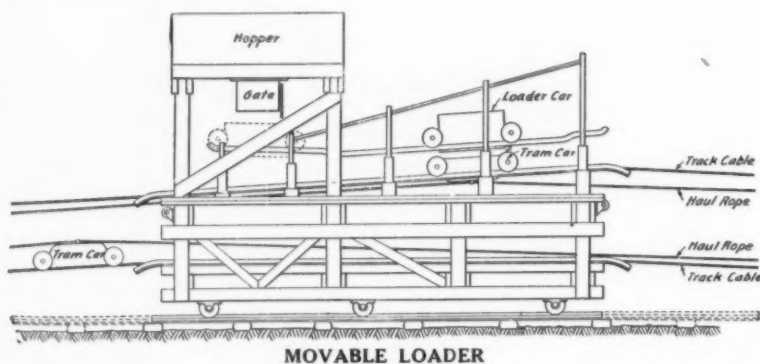
It often happens that our tramway has to serve two or more mine tunnels, etc. This involves no special construction other than to set up a separate automatic loader at each loading point. Assuming that the amount of material handled is the same at each point, then, if there are two loading points, each alternate car is so triggered as to engage its corresponding loader; if there are three loading points, every third car is triggered to engage its own loader, etc. The whole loading scheme is therefore as automatic as if there were but one loader at the terminal.

In many other cases, such as excavation in clay banks, gravel pits, sand banks, etc., there is only one loading point required, *but this must be movable* and so arranged as to travel directly with the steam shovel or other excavating machinery. We solve this problem in a very simple and practical manner.

The loader, instead of being a part of the terminal frame, is mounted on a separate frame of its own, which rolls on flanged car wheels. It is shifted from point to point by laying down temporary ties and two lengths of rail ahead of it, precisely as with a steam shovel.

Over the loader is a small hopper bin, usually of from 2 to 5 yards capacity. This bin has in it one or more undercut gates, which are hand-operated, and which discharge their load cleanly into the loader car beneath, which is then picked up automatically by the first car that comes along, the same as in standard work.

If scrapers or wheelbarrows are used for collecting the material, a movable inclined runway of plank is carried across the tramway. The wheelbarrows or scrapers drop their load directly into or alongside the throat of the hopper, which is in this case only equal in capacity to the loader car.



By this arrangement the steam shovel and the loader travel together back and forth across the pit, being shifted sideways from time to time as required.

In our next advertisement we will show how we treat the problem of multiple or movable dumping points.

Respectfully submitted,

**AMBURSEN COMPANY,**  
Tramway Department

61 Broadway, New York

## CARNEGIE STEEL COMPANY

GENERAL OFFICES: PITTSBURGH, PA.

### STEEL TIES

We manufacture steel cross ties and fastenings suitable for every kind of service.

Our heavy sections are used by steam and traction roads under most exacting conditions.

Our lighter sections are especially adapted for use in mine and portable track.

When you are in the market let us figure with you on your requirements.

#### DISTRICT SALES OFFICES:

BIRMINGHAM  
BOSTON  
BUFFALO

ST. LOUIS

CHICAGO  
CINCINNATI  
CLEVELAND

DENVER  
DETROIT  
NEW ORLEANS

ST. PAUL

NEW YORK  
PHILADELPHIA  
PITTSBURGH

#### UNITED STATES STEEL PRODUCTS COMPANY—PACIFIC COAST DEPARTMENTS:

LOS ANGELES

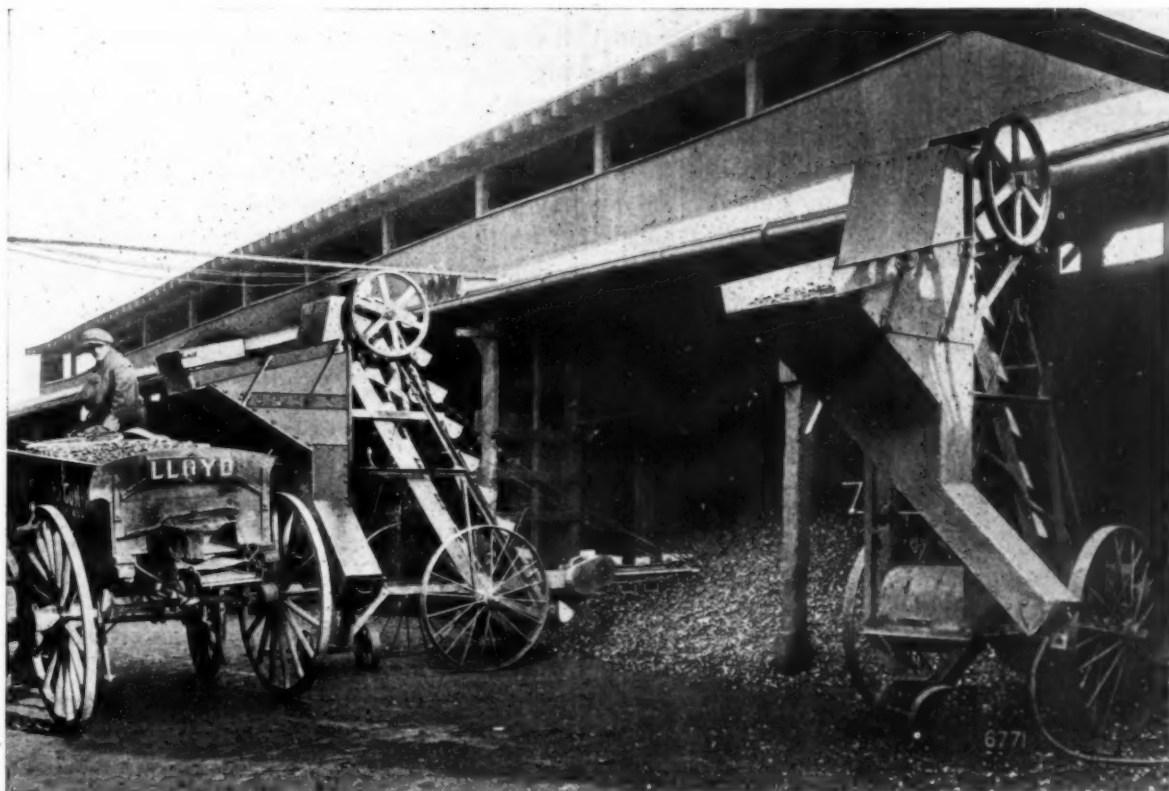
SAN FRANCISCO

PORTLAND

SEATTLE

EXPORT REPRESENTATIVES—UNITED STATES STEEL PRODUCTS COMPANY, NEW YORK, N. Y.

# For the Coal Dealer Who Takes Pride in His Yard



Two-Type "A" Link-Belt Portable Wagon Loader.—These machines screen thoroughly and you can guarantee to deliver clean fuel.

**F**OR the man who wants to increase the efficiency of his men. Who does business in an up-to-date manner—takes advantage of every modern facility to increase his profits.

For that man—even though he does a small business now—we say, "buy a Link-Belt Portable Wagon Loader."

Your neighbor may have a coal pocket but you can screen and load your wagons or trucks just as fast as he can, and you have but a few

hundred dollars invested as against his thousands.

The Wagon Loader is a machine which was designed for your business particularly—for you to cut down your yard expenses. Built to help you increase your profits. It has been successful in doing this. Hundreds of coalmen endorse it. Look around your yard today and see if you can't profitably employ the Link-Belt Loader for loading and screening. Prices \$325.00 and up. Model D loads a ton per minute.

Write for new Catalog No. 210 today.

Link-Belt Wagon Loaders Are Equally Efficient for Loading Sand, Stone, Gravel, Clinker, Refuse at Manufacturing Plants, Etc.

## LINK-BELT COMPANY

### Philadelphia

New York.....299 Broadway  
Boston.....49 Federal St.  
Pittsburgh.....1501 Park Bldg.  
St. Louis.....Central National Bank Bldg.  
Buffalo.....698 Ellcott Square

### Chicago

Detroit.....911 Dime Bank Bldg.  
Cleveland.....1304 Rockefeller Bldg.  
Seattle.....530 First Ave. South  
Denver.....Lindrooth, Shubart & Co.  
San Francisco...N. D. Phelps, Sheldon Bldg.

### Indianapolis

New Orleans.....Whitney Supply Co.  
Birmingham.....General Machinery Co.  
Los Angeles.....304 N. Los Angeles St.  
Minneapolis.....Link-Belt Supply Co.  
Toronto, Can.....Can. Link-Belt Co., Ltd.



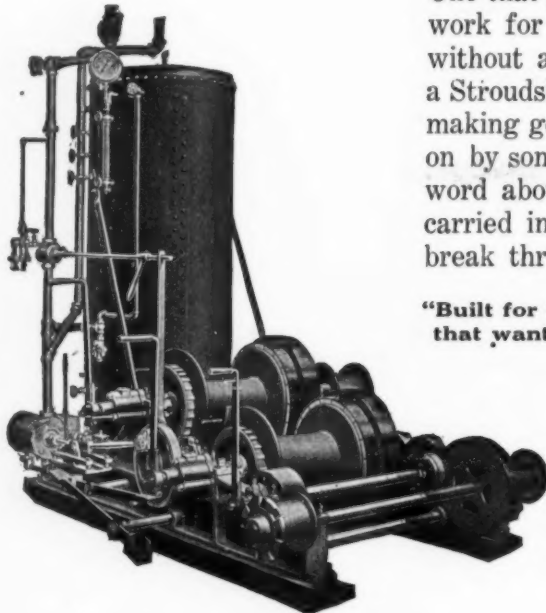


# STROUDSBURG=QUALITY

We Standardized the 125 Lbs. Pressure Hoisting Engine



## A Hoisting Engine You Can Depend On



One that you can put "on the job" and feel satisfied that it will work for you continuously—night and day when necessary—without any annoying breakdown. Such a hoisting engine is a Stroudsburg. They are not an experiment, as they have been making good in all sections of the country for years. Insisted on by some of the leading contractors in the country. And a word about Stroudsburg Service—duplicate parts are always carried in stock to save delay in case a part should wear or break through some unavoidable accident.

"Built for the man  
that wants the best"

The up-to-date  
Contractor's favorite

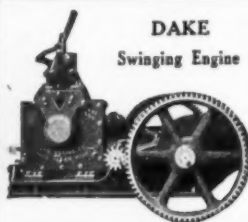
BUILT FOR EVERY PURPOSE

Write for Catalog 9 and full details

## Stroudsburg Engine Works

Office and Works—64 N. Third St.

STROUDSBURG, PA.

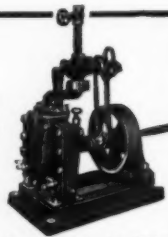


DAKE

Swinging Engine

WRITE FOR CATALOG OF OUR  
Drill Hoists Motor Crabs  
Steam and Air Hoisting Engines  
Motors Swinging Engines  
Pneumatic Hoists Spud Hoists

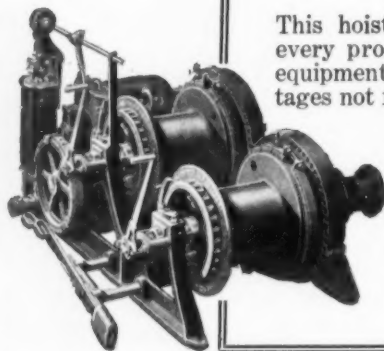
DAKE ENGINE CO.  
Grand Haven, Mich.



Stationary Engine (2 to 30 hp)



## An Electric Hoist for Platform or Concrete Elevators or Derricks



This hoist should be a part of every progressive contractor's equipment. It has many advantages not found in others.

Like all M-M products, it is made of only the best material thoroughly tested. Will put money into any contractor's pocket.

Catalog on request

### MEAD-MORRISON MFG. CO.

East Boston, Mass.

BRANCH OFFICES:

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149 Broadway, Singer Bldg.

BIRMINGHAM  
1428 N. 20th St.

BALTIMORE  
820 Equitable Bldg.

PITTSBURGH  
110 W. Park Way, N. S.

NORFOLK  
810 Bank of Commerce Bldg.

## LIDGERWOOD HOISTS

Steam and Electric  
Hoists for all kinds  
of Contracting and  
mine work.

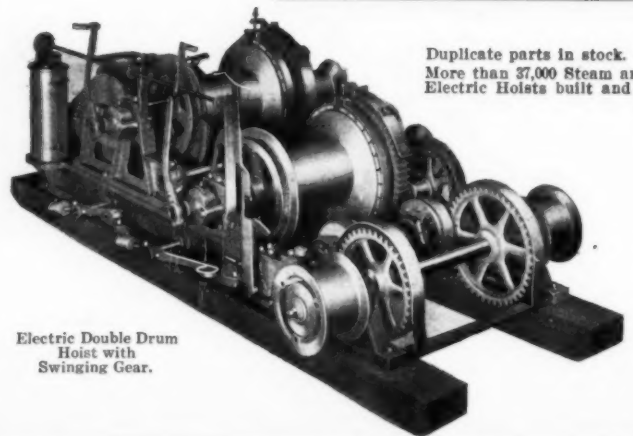
Gasoline Hoists  
Cableways Excavators  
Derricks  
Ground and Overhead  
Log Skidders

LIDGERWOOD MFG. CO.  
96 Liberty St., New York

Philadelphia Pittsburgh Chicago Seattle  
Woodward, Wight & Co., New Orleans

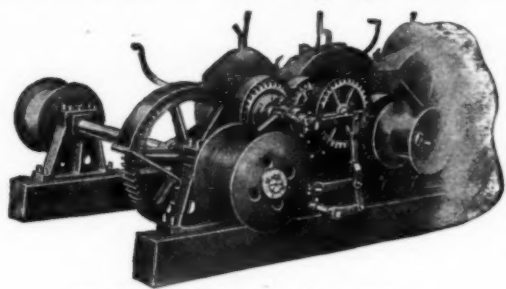
We have many styles  
of hoists. One of them  
is the correct answer  
to your hoisting  
problem.

Send for  
Catalogues.



Electric Double Drum  
Hoist with  
Swinging Gear.

Duplicate parts in stock.  
More than 37,000 Steam and  
Electric Hoists built and used.

**Improved Boom—Swinging Attachment****The Werner-Flory Patent Boom Swinger**

This Swinger can be attached to any hoist. If your derrick work or contract requires a swinging boom, it will repay you to investigate.

We build hoists for every requirement. Mines, Quarries, Contractors, etc., Dredging Machinery, Cableways.

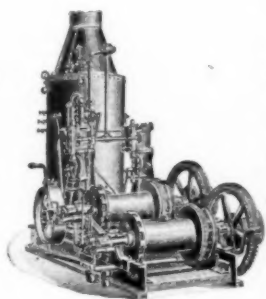
**S. FLORY MFG. CO. Bangor, Penna.**

**BYERS Hoisting Engines****Southern Sales Offices:**

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Birmingham, Ala.  
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Mobile, Ala.  
Alamo Iron Works,  
San Antonio, Texas  
Cameron & Barkley Co.,  
Jacksonville and Tampa, Fla.

**Excavators,****Sewer and****Ditch****Digging****Machines.****Derrick****Fittings, Etc.**

**THE JOHN F. BYERS MCH. CO., 244 Sycamore, St., RAVENNA, O.**

**HOISTING ENGINES  
STEAM HAMMERS  
DERRICKS**

For Contractors, Bridge Builders, Dredging,  
and General Hoisting Duty.

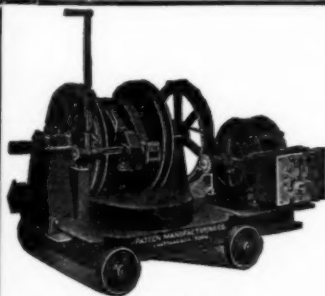
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**National Hoisting Eng. Co.****HARRISON, N. J.**

**W. E. AUSTIN CO., Atlanta, Ga., Southern Sales Mgr.**

**Patent Double Platform  
Hoists**

Driven by Electric-Motor, Gasoline  
or Steam Engine

**Single and Double Drum Hoists****PATTEN MFG. CO.****CHATTANOOGA, TENN****Postal Brings Catalogue****CRANES For All Purposes  
Electric and Hand Power**

Case Standard Cranes are the result of thoroughly tested ideas secured during many years from the best designing and operating engineers. They are manufactured under the most favorable conditions in a plant recently equipped at large expense for this particular purpose. They represent the greatest value for price charged.

**THE CASE CRANE & ENGINEERING CO. - Columbus, Ohio**

**WATERBURY  
WIRE ROPE****Good Rope  
is Essential  
for Sand and  
Gravel Re-  
handling**

THE only safe course is to specify a make of rope that has been giving satisfaction on all kinds of cable-way, derrick, steam shovel, and other sand, and gravel handling equipment.

One user writes of Waterbury Wire Ropes:

"One of your ropes has been in use at Marion, Ill. for three years, having outlasted two ropes of other makes. The rope in question shows no signs of giving out."

Don't you want like service from the ropes you buy?

There is a Waterbury Rope for every contracting requirement—Wire, Manila, Sisal and Fibreclad. Write to our nearest office about them.

**WATERBURY COMPANY****80 SOUTH STREET, NEW YORK****BRANCH OFFICES:**

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SAN FRANCISCO ..... 113 Davis St.  
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**SALEM FOUNDRY & MACHINE WORKS  
SALEM, VIRGINIA**

Manufacturers of FLOUR AND CORN MILL MACHINERY, WOOD SPLIT AND IRON PULLEYS, RING  
OIL HANGERS, COUPLINGS, GEARINGS, COLLARS, Etc.

Shafting, Belting, Mill and Elevator Supplies in Stock  
Roll Corrugating a Specialty

**WELLER-MADE****Concrete Mixing Plants****Storage Bins and Car Unloaders****Handling and Measuring Devices****WELLER MFG. CO., Chicago**

Deverell, Spencer & Co.  
Southeastern Sales Agents  
Garrett Bldg., Baltimore

J. C. Van Arsdell & Co.  
Southwestern Sales Agents  
711 Main Street, Dallas



# HAYWARD CLAM SHELL BUCKETS

THE Hayward Class "E" Clam Shell Bucket is a most efficient machine for digging such materials as crushed stone, broken slag, gravel, packed sand, etc., and may be equipped with steel teeth for excavating in hard or rock filled soil.

The illustration below is one of four machines used for changing the grade on the Long Island Railroad, East New York. The Bucket is a Hayward Class "E" with Ore Bowl equipped with teeth. This type of bucket is particularly serviceable when the material to be dug contains a large percentage of gravel or boulders.

There are Hayward Buckets for digging and rehandling under all conditions. Tell us your particular problem and we will make recommendations and send you catalogues



## THE HAYWARD COMPANY

BUILDERS OF DIGGING MACHINERY

50 Church St., New York, U. S. A.

# THEW

**If Considering the Purchase  
of a Steam Shovel Let Us  
Submit DEFINITE DATA.**

THE purchase of a Thew shovel does not involve guess work or risk of any kind.

1200 Thews are now in operation and our policy is to give any information desired regarding the operation of any particular shovel in any kind of work. We have nothing to conceal because the Thew Shovel gives uniformly excellent results.

Furthermore, we have a practically unlimited amount of data to submit.

If you will write us, giving outline of the conditions under which you must work, we will give you definite facts as to results accomplished in numerous similar instances. These will enable you to determine just about what you can expect from a Thew shovel in your particular work.

Write us today regarding this and put your economy problem in operation as soon as possible.

*Also ask for Circular M.*



**THE THEW AUTOMATIC SHOVEL CO. LORAIN, OHIO**

POWER SHOVELS FOR RAILROADS, MINES AND CONTRACTORS  
SHRETLERS, BRICKYARDS AND CEMENT WORKS

## Long Link Conveyor Chain For Conveying Logs, Slabs, Saw Dust, Etc.



Hand-welded, of a special mix Wrought Iron, of HIGH TENSILE, equal in wear to STEEL, yet sufficiently fibrous to permit of jars and strains with little tendency to CRYSTALLIZE, a feature not found in Machine or Die Weld Steel Chains.

Each link gauged to insure accuracy of pitch.

Our Steam Shovel, Dredge, Crane, Quarry, Close Link and Stud Link Anchor Chains, all HAND MADE, will meet your approval.

Hooks, Rings, Shackles, Swivels and other Hand-made Forgings furnished attached to chain or separate, all forged with the grain of the material.

**Weimer Chain & Iron Company**  
LEBANON, PA., U. S. A.



WILLIAMS—That's All.

## THE CONTRACTOR

who is about to invest his money in equipment naturally considers, first, where he can purchase the BEST, MOST EFFICIENT and MOST PRODUCTIVE machinery, that which will give him maximum results at minimum cost. In buckets the answer is

## THE WILLIAMS,

as is testified to by continuous orders from the largest contractors.

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Our business is building land dredges. We have studied the problem from A to Z. Our Engineers are expert in this line. Many contractors are doing more work at less cost, and we know you can with the

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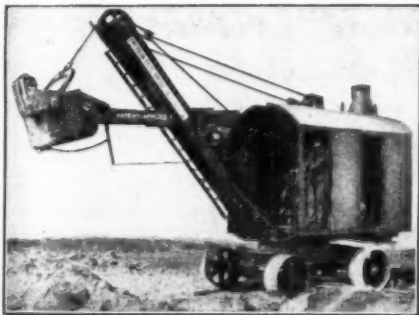
For all kinds of ditch, drainage and irrigation excavation. For water-work, mounted on a float, the Dredge is equally efficient. The steel construction provides a light but strong machine. Operated by three men. Engine uses gasoline or kerosene. Self-propelling. Quick and economical in operation. Low operating costs, low maintenance charges and large capacity have made low cost records.

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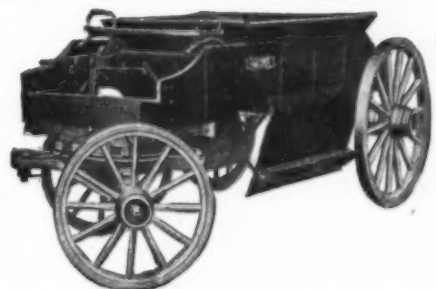
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**Strong  
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## Fast Work in Swampy or Firm Soil Is Accomplished with the Monighan Walking Excavator



No. 3-T Monighan Walking Drag-Line Excavator, equipped with 60 ft. Boom and 3 cu. yd. Page Scraper Bucket, going through a cornfield on its way from station to work near Elsberry, Mo. W. E. Callahan Construction Co., Contractors.

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Trackmen on the ground around the machine are eliminated entirely. The rapid-traction feature cuts down the required boom length. Let us explain how. A great dirt-mover for Railroad, Levee, Drainage, Irrigation or Big Foundation Excavation.

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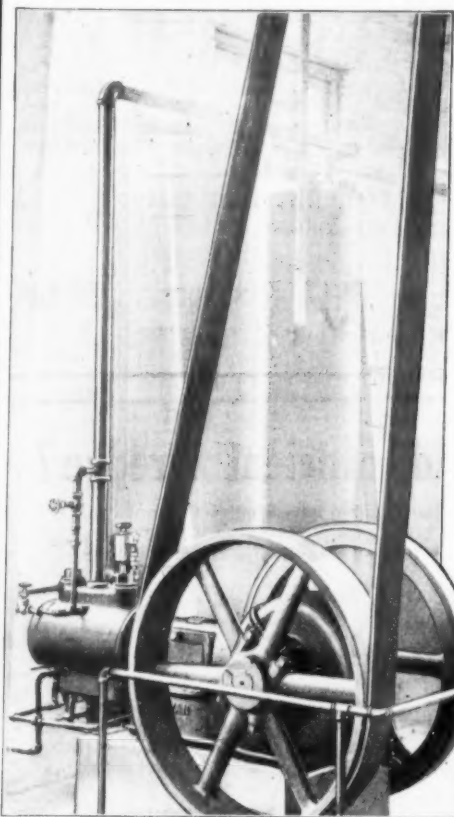
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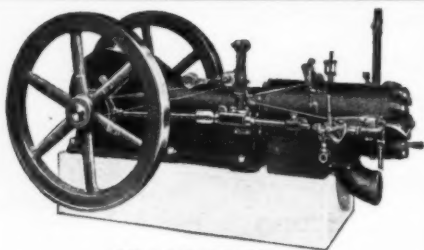
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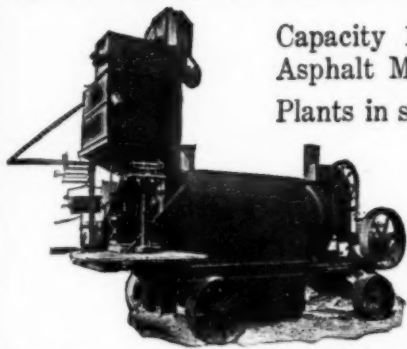
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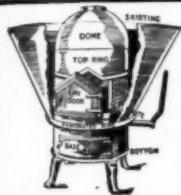


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Are fully described in our new CATALOG, which we send

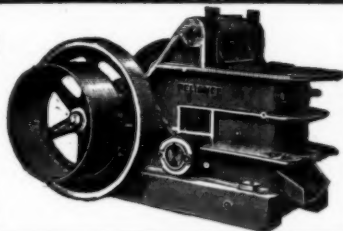
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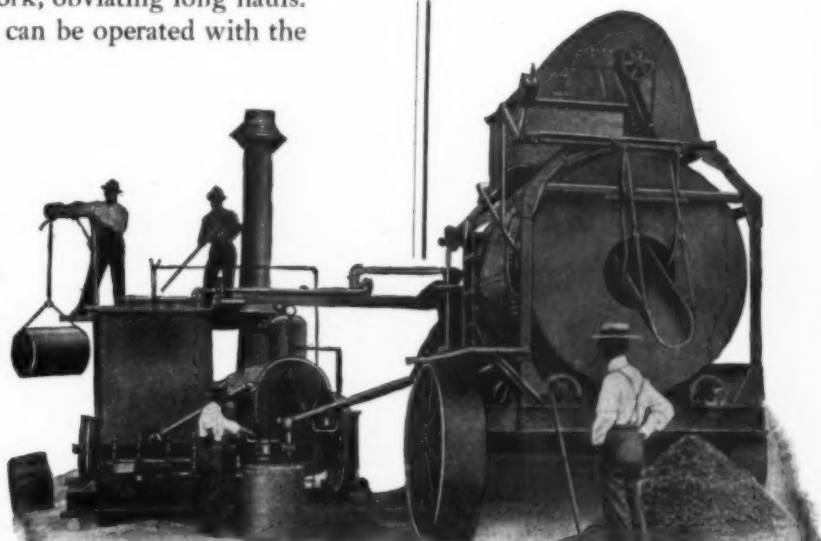
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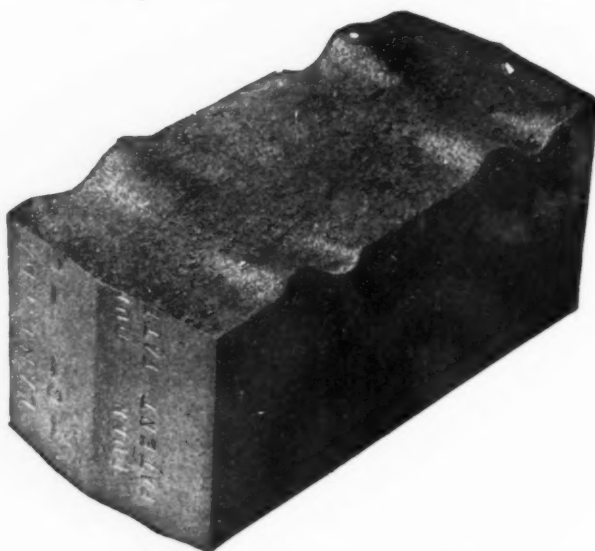
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See Sweet's Catalogue, Engineering Edition, for details and specifications of Aztec Products



## Paving with Wire-Cut-Lug Brick is a necessity if the best obtainable brick pavement is desired



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A few years ago this assertion had to be proved. Wire-Cut-Lug brick was a new thing. It was not a smooth, attractive brick. Engineers looked at it askance. It was only by making the stiffest kind of fight with local engineers, division engineers and the State highway department that an opportunity was gained to put down in New York State a pavement of Wire-Cut-Lug brick. Even when the brick were delivered on the ground, they were rejected because they were not beautiful in appearance.

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Today 65,903,876 Wire-Cut-Lug brick are doing service in pavements within the State of New York, and other millions of the brick are being ordered for use in the same State. Ohio follows New York with 36,149,271, and Illinois reports 16,429,290 Wire-Cut-Lug brick in use.

The doubting engineers and officials were "shown" and they were convinced.

The assertion that Wire-Cut-Lug brick make the best brick pavement obtainable has to be proven no longer. Orders for 79,575,060 of the brick during the past nine months prove that Wire-Cut-Lug brick has won its case before the bar of expert opinion.

Twenty-six companies, operating 39 plants, are unable to supply the demand for these paving brick, and orders are piling up for delivery months ahead.

On September 30, 1914, four years after Wire-Cut-Lug brick were introduced, 3,782,913.35 square yards of Wire-Cut-Lug brick pavement had been laid in the United States and Canada.

The City of Baltimore had laid 6,320,300 of the brick in its streets, 75 per cent. of all the paving brick used in Baltimore in 1914 being Wire-Cut-Lug.

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## Dunn Wire-Cut-Lug Brick Company

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One plant at Olean, N. Y.  
Reynoldsville Brick & Tile Company, Reynoldsville, Pa.  
One plant at Reynoldsville, Pa.  
Danville Brick Company, Danville, Ill.  
One plant at Danville, Ill.  
Clinton Paving Brick Co., Clinton, Ind.  
One plant at Clinton, Ind.  
Alton Brick Company, Alton, Ill.  
One plant at Alton, Ill.  
Deckman-Duty Brick Co., Cleveland, Ohio.  
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Tuna Valley Pressed Brick Co., Bradford, Pa.  
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Foster Paving Block Co., Bradford, Pa.  
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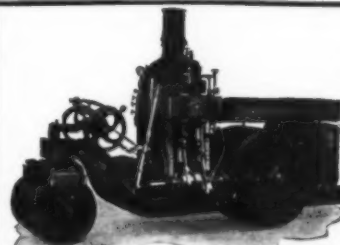
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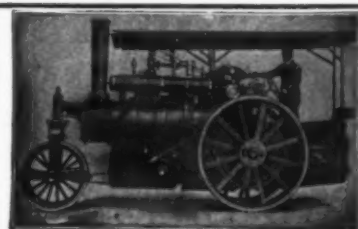
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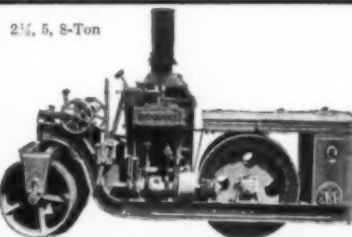
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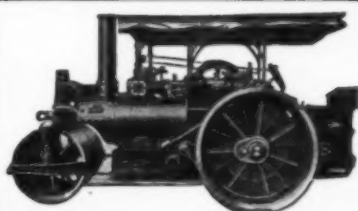
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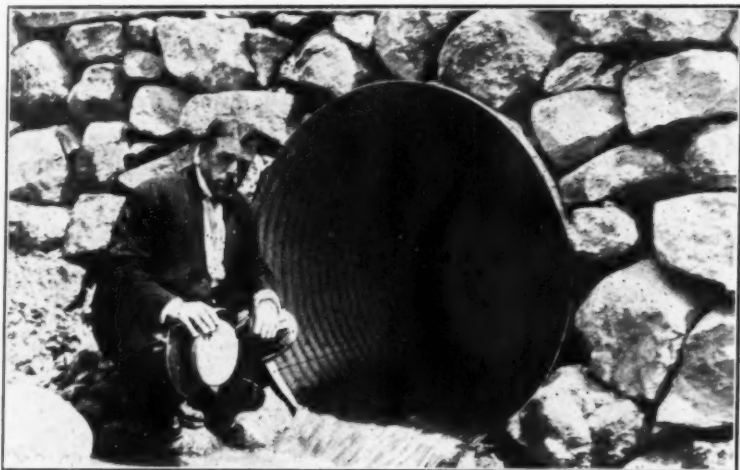
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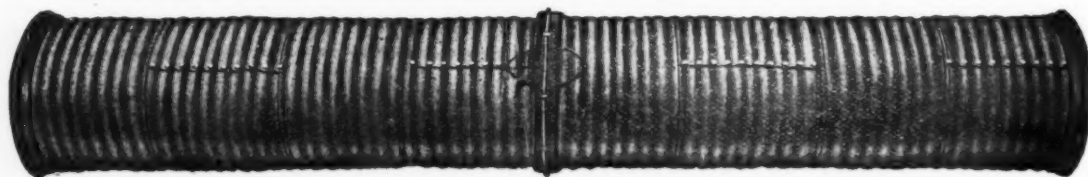
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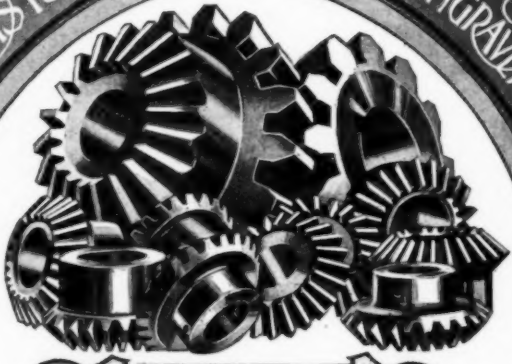


**SALISBURY METAL CULVERT COMPANY**

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- Says** a WASHINGTON (STATE) COUNTY ENGINEER:  
"Our Road Supervisors are pleased with the nestable feature of 'ACME' Culverts and the ease with which they can be put together."
- Says** a WISCONSIN TOWN-BOARD CHAIRMAN:  
"The 'ACMES' are handy to transport and easy to put together."
- Says** a M. A. M. SOC. C. E.:  
"I know enough about the performance of your 'ACME' (Nestable) Corrugated Metal Culverts to feel like presenting them as the standard of their type," etc.
- Says** a B. & O. RAILWAY ENGINEER:  
"A 15-ton road roller passed over the 'ACME' (Nestable) Culvert several times with only a foot of loose earth on it, and it stood the test."
- Says** a RAILWAY MANAGER IN COLORADO:  
"We have 'ACMES' installed under our road and they are standing the heavy traffic in an entirely satisfactory manner."
- Says** a U. S. GOVERNMENT ENGINEER:  
"We have been using 'ACME' (Nestable) Culverts for six years or more; those we have placed into our work have shown no indication of deterioration; we find they stand up under heavy loads."
- <sup>1</sup> In view of the above opinions, don't you think that the wisest move you can make—now—is write us for Catalog G-9?

For quotations for delivery in North and South Carolina, address—  
THE CAROLINA METAL PRODUCTS COMPANY, Manufacturers in Wilmington, N.C.

For quotations for delivery in Virginia, West Virginia and Maryland, address—  
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Genuine "Open-Hearth" IRON (99.875% Pure) **CULVERTS**  
Low relative prices and high quality won't mix.  
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"GENUINE" "ARMCO" AMERICAN INGOT IRON CULVERTS 99.84 Per Cent Pure  
Pure Iron; K. T. Water  
Gates for Irrigation;  
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AMERICAN INGOT IRON "ARMCO" CULVERTS 99.84% PURE IRON  
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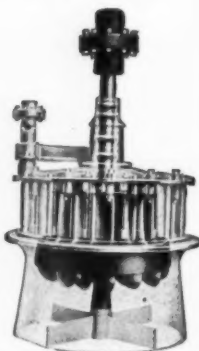
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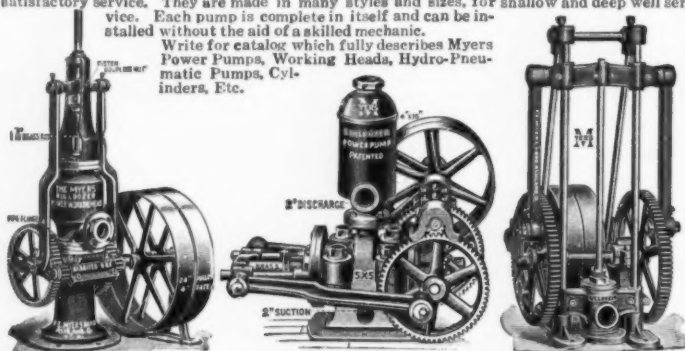
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Have your own Water Supply System by installing a Myers Power Pump or Working Head. This would further utilize the power you already have and greatly reduce overhead expense. The first cost would be practically the only cost, for Myers Power Pumps give long years of satisfactory service. They are made in many styles and sizes, for shallow and deep well service. Each pump is complete in itself and can be installed without the aid of a skilled mechanic. Write for catalog which fully describes Myers Power Pumps, Working Heads, Hydro-Pneumatic Pumps, Cylinders, Etc.



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Steam or Electric Driven, or geared from shaft, are offered for service in elevating large quantities of water from deep Artesian Wells. Single Stroke Pumps for lighter deep well work. Catalog No. 6.

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ALL SIZES, BELT DRIVEN AND DIRECT CONNECTED

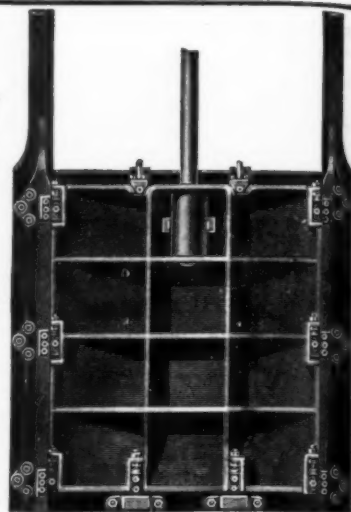
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This construction is embodied in our Flange Elbow, Tee, Male and Female and Air Pump Unions. Ask for circular and sample.

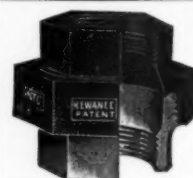
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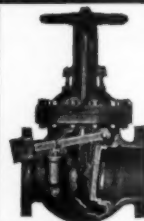


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Remember those Five "KEWANEE" Reasons

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PIPE BENDING A SPECIALTY



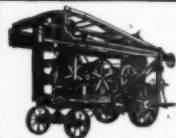
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For Artesian Water Wells; Oil, Gas and Mineral Test Wells;  
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and Portable Machines, all depths to 2500 feet.  
In writing for catalog describe work.

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All Sizes for Pipe Mills  
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This cut illustrates No. 5  
and No. 6 Machines.

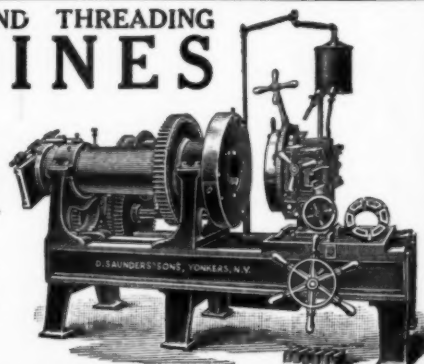
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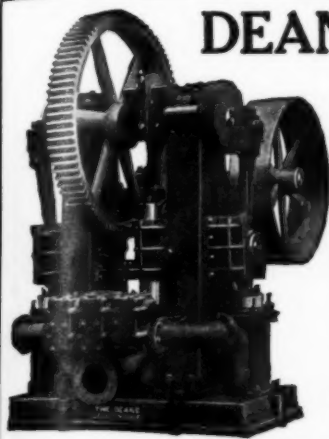
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You will be interested in the details given in Bulletin D204-29.

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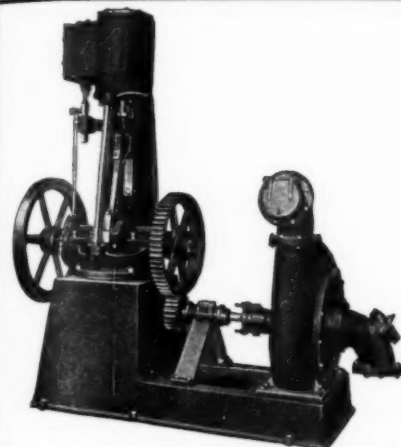
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New York Office: 115 Broadway

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## SEVEN PUMPS IN USE BY ONE CUSTOMER

Like Illustration

They are used to get the same effect as a direct connected pump, but to go into a *smaller space*.

If you have some special conditions to meet, let us help you.

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Successors to the Erie Pump and Engine Works

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Highest Efficiency. Both CYLINDER and Register Gate

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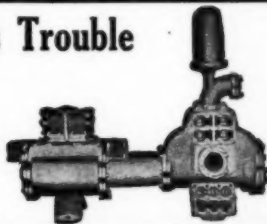
## Less Working Parts—Less Trouble

This pump is simplicity itself. It has no valve gear, eliminating levers, small steam ports, packing rings, etc.

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have fewer working parts than most pumps. They are strong and dependable. Write for Catalogue.

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"It may please you to learn that the Cameron Centrifugal recently installed in our Lee shaft to take the place of another leading make (which was worn out in three months) delivers 20% more water than the other pump did when new. This other pump is now in the scrap bin," writes the superintendent of a large coal company in Penna.

It is a Cameron 4" Double Suction Pump with a horizontally split casing and an enclosed impeller.

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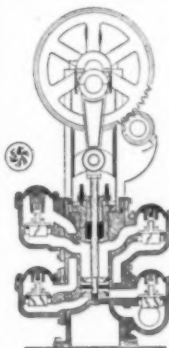
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## A. S. Cameron Steam Pump Works

11 Broadway, NEW YORK

Offices the World Over

## EIGHT REASONS FOR Holland Triplex Pump Superiority



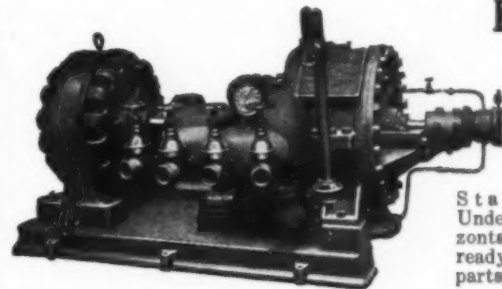
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Sizes from 25 to 500 gals. a minute. Get in touch with us NOW.

## HOLLAND MACHINE COMPANY

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are built to meet the specifications of the Associated Factory Mutual Fire Insurance Companies and are the Accepted Standard of the Fire Underwriters. The Horizontal Split Casing affords ready access to the internal parts.

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### Why Experiment?

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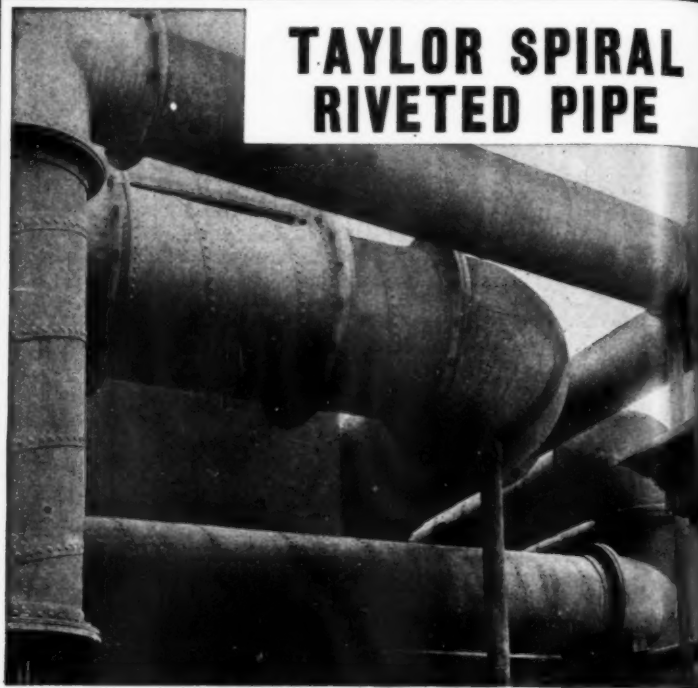
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**MOST ECONOMICAL PIPE** for many purposes about industrial plants. Furnished in accordance with sketch, ready for immediate installation upon arrival.

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FOR **WATER AND GAS**

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Flanged Pipe and Flanged Fittings

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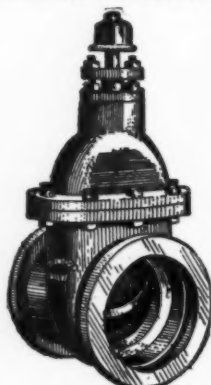
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FOR

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U.S. GOV'T STANDARD CLEANING POWDER.

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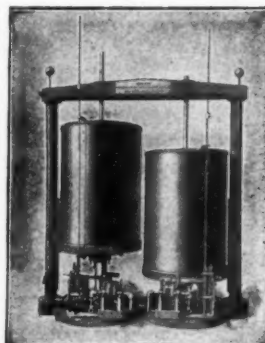
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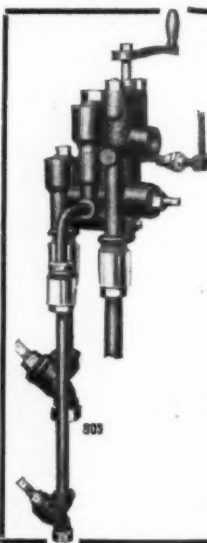
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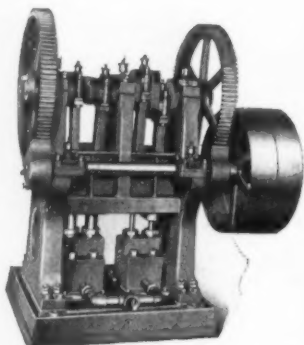
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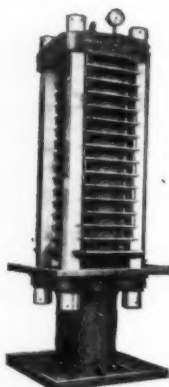
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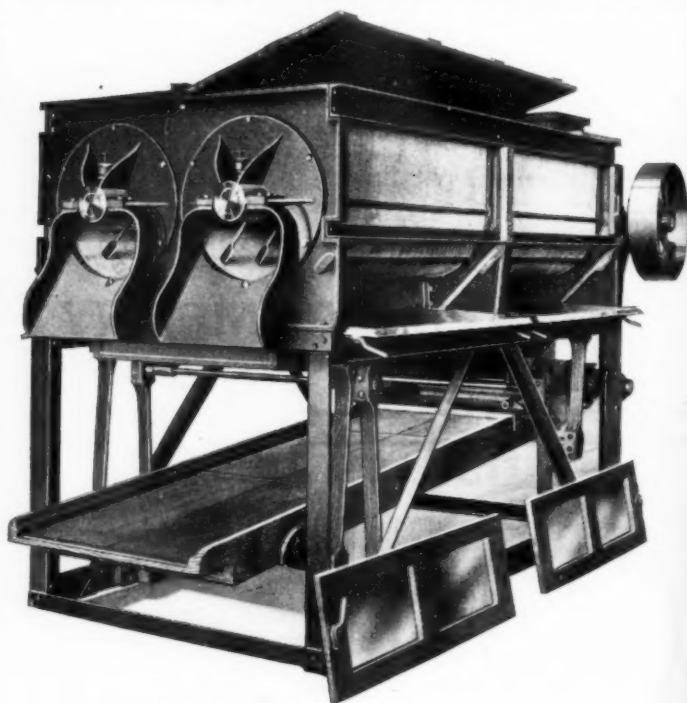
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Since these illustrations appeared in the Manufacturers Record it has been necessary to remake this plate because 111 trucks have been added to above fleets

NOTE—In the last 10 days 29 additional White trucks have been delivered, thus making total 140 in place of 111

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Philadelphia - - - - 216-220 North Broad Street  
Boston - - - - - 930 Commonwealth Avenue  
San Francisco - - - - Market St. and Van Ness Ave.  
Baltimore - - - - - Mount Royal and Guilford Avenues

Pittsburgh - - - - - Craig Street and Baum Boulevard  
Atlanta - - - - - 63-65 Ivy Street  
St. Louis - - - - - 3422 Lindell Boulevard  
Washington - - - - - 1233 20th Street, N. W.  
New Orleans - - - - - 750 St. Charles Avenue  
Newark - - - - - 33-35 William Street

Seattle - - - - - 1514 Third Avenue  
Memphis - - - - - 278-280 Monroe Avenue  
Dallas - - - - - 2025-2027 Commerce Street  
Toronto - - - - - 14 Alexander Street  
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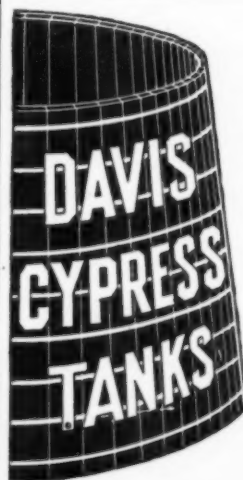
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For this reason their Industrial and Agricultural Department is maintained. Its co-operation is offered in every way possible to the homeseeker who will investigate the opportunities of the South; every assistance is extended which will enable him to find the location where are the home conditions he desires and which will give him prosperity. Immigration agents will advise with him. The information about lands, crops and the various sections and conditions along the roads, carefully collected by the companies, is at his command. Careful attention will be given to secure for him the special information desired on particular subjects or localities. Booklets and other printed matter will be sent on application.

After the homeseeker is located, trained and practical agricultural field agents, live stock, dairy and poultry agents familiar with local conditions will be at his service in solving any of the problems which his new location may bring. Market agents will help him to find the best market for his products.

What we do for the homeseeker, we also do for the manufacturer looking for a location for his plant. Industrial agents will help him solve the questions as to the proper point where raw materials may be satisfactorily assembled; where labor, power, transportation and market conditions are best; where necessary lands are properly located and to be had; where local capital, if wanted, will join in building the plant, and where all the other conditions which help to make the success of the industry and the welfare of its labor are to be found.

We offer our services in behalf of a territory reached by nearly 10,000 miles of railway, the people of that territory and a company which is earnestly at work in co-operation with every person or interest affected to build up the territory and advance the fortunes of those who are developing the lands and the many opportunities in the South.

Southern Railway  
Southern Railway in Mississippi  
Mobile & Ohio Railroad  
Georgia Southern & Florida Ry.  
Virginia & Southwestern Ry.  
Augusta Southern Railroad

**M. V. RICHARDS**  
Industrial and Agricultural Commissioner  
**WASHINGTON, D. C.**

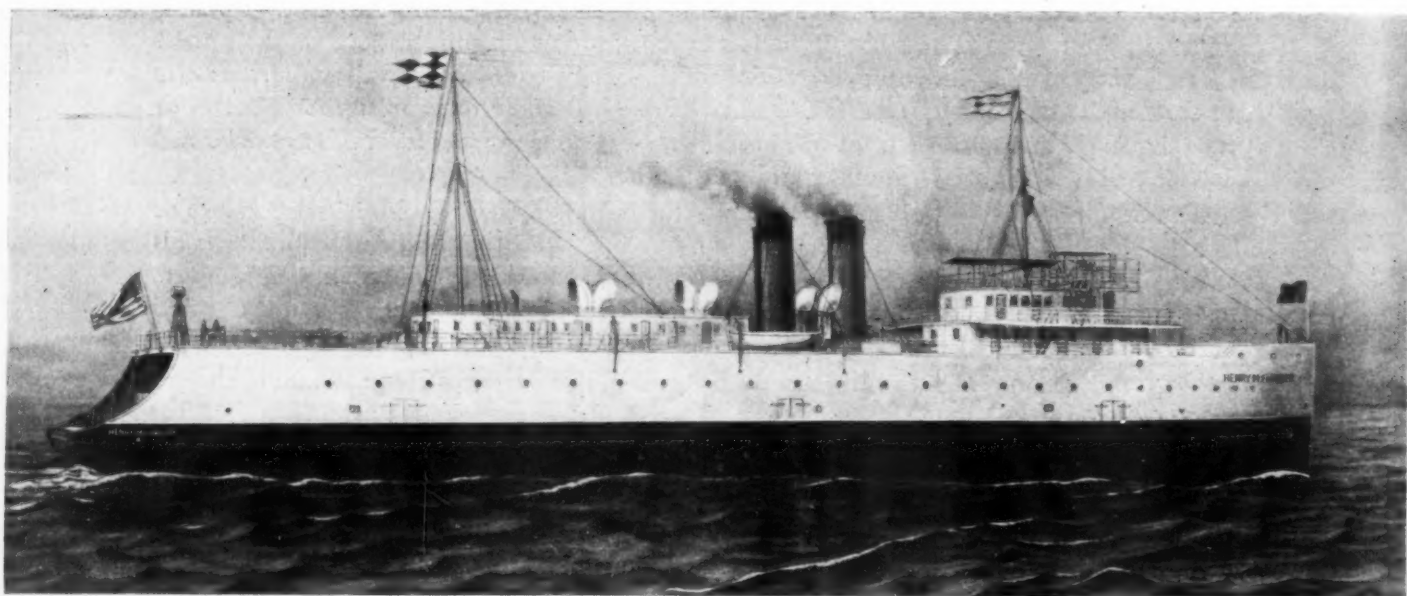
Danville & Western Railway  
Tallulah Falls Railway  
Blue Ridge Railway  
Hawkinsville & Fla. South'n. Ry.  
Macon & Birmingham Railway  
Northern Alabama Railway



# All-Rail Route to Cuba Via Key West

When Henry M. Flagler, the founder of the Florida East Coast Railway, dreamed of the wonderful possibilities of the East Coast of Florida, he conceived broad and daring plans for carrying these dreams to fulfillment.

Prominently among his plans was one to build an all-rail route to Cuba. The last link of this plan has just been completed by his successors in building the big ferryboat "Henry M. Flagler," to transport freight cars from Key West to Havana, and provide for the interchange of products of the United States and Cuba by a direct all-rail route.



THE "HENRY M. FLAGLER," RAILROAD FERRYBOAT, KEY WEST-HAVANA.

Nine of the leading railroads of the South are co-operating for the establishment of a fast freight service from all parts of the United States to Cuba via Key West, this service being known as the

## "CUBAN ALL-RAIL ROUTE"

This magnificent steamer, illustrated here, has accommodations for thirty of the largest refrigerator cars, which will be carried on four sets of standard-gauge track. In addition, it contains three cargo holds capable of being loaded directly either from the cars or through cargo ports at the side of the vessel. The distance from Key West to Havana, 100 miles, will be covered by this ferry steamer in eight hours, as required by schedule.

*Any information desired regarding this service and the advantages it offers for quick and direct shipment to Cuba will be gladly furnished.*

## FLORIDA EAST COAST RAILWAY

(FLAGLER SYSTEM)

J. E. INGRAHAM, Vice-President

ST. AUGUSTINE, FLA.

# A Chance for Every Man In This Land of Opportunity

From the vast coal fields of Southwest Virginia (and now being extended to Eastern Kentucky), across watersheds, down rich valleys, over tablelands, through the mountains of "The Land of the Sky," and through forest regions of undeveloped wealth, runs the Clinchfield to the center of the cotton-mill interests of the Piedmont region of the Carolinas.

The territory opened up by this railroad is practically a new virgin land, rich in minerals, timbers, water-powers, agricultural opportunities, and in commercial and industrial possibilities of every description awaiting large development.

Since the beginning of time the vast latent wealth of this wonderful country has lain dormant, due to its inaccessibility. With the building of the Clinchfield a remarkable transformation has taken place; manufacturing plants have been established to utilize varied mineral deposits; great timber areas have been opened up; more attention is being devoted to farming, fruit growing, cattle raising, etc.; new towns are being developed, and on every hand can be seen an industrial activity that is indicative of greater things in the future.

The Clinchfield, with its connections, affords distribution facilities which enable the products of its territory to be distributed to the country's best markets. Both the Norfolk & Western and the Southern Railways are crossed, giving outlet to the North and East on the one hand and the South and Southwest on the other. At its southern end connections are made with the Seaboard Air Line, the Atlantic Coast Line and the Southern Railways, affording distribution throughout the Southern States, and to seaports for coastwise and foreign trade. Its Elkhorn Extension, now under construction, will carry it into Eastern Kentucky, where it will have connections with the Chesapeake & Ohio and other roads, affording Western outlets.

Occupying a strategic position in relation to the country's great consuming areas, with an abundance of raw materials to manufacture a wide range of products, with soil and climate suitable for raising farm products of all kinds, with climatic and scenic advantages not surpassed or equalled in America, the Clinchfield territory presents inviting opportunities to investors, manufacturers, homeseekers and farmers.

*Let us tell you of the special opportunities in the Clinchfield territory for the investor, manufacturer and farmer.*

## Carolina, Clinchfield & Ohio Rwy.

*"THE ROAD OF OPPORTUNITY"*

R. F. BREWER, Industrial Agent

Johnson City, Tenn.



## CLASSIFIED INDEX OF ADVERTISEMENTS.

- Abrasive Materials.**  
Carborundum Co., Niagara Falls, N. Y.  
Vitrified Wheel Co., Westfield, Mass.
- Accountants.**  
Armstrong, Allan Gordon, Norfolk, Va.  
Baltimore Audit Co., Baltimore, Md.  
Black & Co., Baltimore, Md.  
Buck, Chester H., Chattanooga, Tenn.
- Accumulator. (Hydraulic.)**  
The French Oil Mill Mch. Co., Piqua, Ohio.
- Agricultural Implements.**  
Myers & Bro., F. E., Ashland, O.
- Air Compressors. (Stationary and Portable.)**  
Allis-Chalmers Mfg. Co., Milwaukee, Wis.  
Chicago Pneumatic Tool Co., Chicago, Ill.  
Gardner Air Compressor Plant, Cambridge, Mass.  
De La Vergne Machine Co., New York, N. Y.  
General Electric Co., Schenectady, N. Y.  
Laidlaw-Dunn-Gordon Plant, Cincinnati, Ohio.  
Sullivan Mch. Co., Chicago, Ill.
- Aluminum Products. (Bars, Sheets, Tubes.)**  
Aluminum Company of America, Pittsburgh, Pa.
- Ammonia Valves and Fittings.**  
Frick Co., The, Waynesboro, Pa.  
York Mfg. Co., York, Pa.
- Anti-Friction Metals.**  
Bailley Leiby Co., Charleston, S. C.
- Architects.**  
Diehl, Wm. Newton, Norfolk, Va.  
Gatlin, W. R., Hopkinton, Ky.  
Grimmer & Toussaint, Tampa, Fla.  
Kimball, Herbert S., Boston, Mass.  
McCann Irish Eng. Co., R. R., Kansas City, Mo.  
Murchison, Hester & Co., Washington, D. C.  
Strine, J. E., Greenville, S. C.
- Architects' Supplies.**  
Starrett Co., L. S., Athol, Mass.  
Weber & Co., F., Philadelphia, Pa.
- Architectural Iron Work.**  
Bolles Iron & Wire Wks., J. E., Detroit, Mich.  
Chesapeake Iron Works, Baltimore, Md.  
Dietrich Brothers, Baltimore, Md.  
Schreiber & Sons Co., The, Cincinnati, O.  
Snead Architectural Iron Wks., Louisville, Ky.
- Arc Lamps. (See Lamps) [Arc and Incandescent]**
- Art Glass.**  
Hinswanger & Co., Memphis, Tenn.
- Asbestos.**  
Asbestos Protected Metal Co., Pittsburgh, Pa.  
Southern Asbestos Mfg. Co., Inc., Richmond, Va.
- Asbestos Products.**  
Asbestos Protected Metal Co., Pittsburgh, Pa.  
Johns-Manville Co., H. W., New York, N. Y.
- Asphalt.**  
Barber Asphalt Paving Co., Philadelphia, Pa.  
Gulf Refining Co., Pittsburgh, Pa.  
Standard Oil Co., Inc., Newark, N. J.  
Texas Co., The, Houston, Tex.  
U. S. Asphalt Refining Co., New York, N. Y.
- Asphalt Mixers.**  
Erie Machine Works, Erie, Pa.  
Equitable Asphalt Maintenance Co., Kansas City, Mo.
- Asphalt Surface Heaters.**  
Equitable Asphalt Maintenance Co., Kansas City, Mo.
- Asphalt Paving Plants.**  
Barber Asphalt Paving Co., Iroquois Works, Buffalo, N. Y.  
Gummer & Son Co., F. D., The, Cleveland, Ohio.
- Asphalt Paving Repair Plants.**  
Equitable Asphalt Maintenance Co., Kansas City, Mo.
- Auditors.**  
Armstrong, Allan Gordon, Norfolk, Va.  
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Black & Co., Baltimore, Md.  
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- Automobile. (Gasoline Passenger.)**  
White Co., The, Cleveland, Ohio.
- Automobiles. (Second Hand.)**  
Mar-Del Mobile Co., Baltimore, Md.
- Axles. [See Car Wheels, Axles and Trucks.]**
- Babbit Metal. [See Anti-Friction Metal.]**
- Ballast. (Railroad.)**  
American Ballast Co., Knoxville, Tenn.  
Bald Mountain Quarry, Newcom, N. C.  
Chicomaqua Quarry & Const. Co., Chattanooga, Tenn.  
Kirkpatrick Sand & Cement Co., Birmingham, Ala.  
Wescon & Brookner Quarry Co., Columbia, S. C.
- Bankers and Brokers.**  
Dataway Trust Co., Wilmington, Del.  
Edwards, Geo. B., New York, N. Y.  
Electric Bond & Share Co., New York, N. Y.  
Halsey & Co., N. W., New York, N. Y.  
Leach & Co., B., New York, N. Y.  
Mercantile Trust & Deposit Co., Baltimore, Md.  
New First National Bank, Columbus, O.  
Nuven & Co., John, Chicago, Ill.  
Peabody, Houghbelling & Co., Chicago, Ill.  
Powell, Garard & Co., Chicago, Ill.  
Provident Savings Bank & Trust Co., Cincinnati, O.  
Southern States Development Co., New York, N. Y.
- Banks.**  
First Nat'l Bank of Key West, Key West, Fla.  
First National Bank, Richmond, Va.  
Merchants-Mechanics' Nat'l Bank, Baltimore, Md.  
New First National Bank, Columbus, Ohio.  
National Exchange Bank, Baltimore, Md.  
Provident Savings Bank & Trust Co., Cincinnati, O.
- Bank and Office Railings and Grilles. (Iron)**  
Bolles Iron & Wire Wks., J. E., Detroit, Mich.  
Chesapeake Iron Works, Baltimore, Md.  
Cincinnati Iron Fence Co., Cincinnati, Ohio.  
Dow Wire & Iron Works, Louisville, Ky.  
Dufur & Co., Baltimore, Md.  
Dufur, Haggott & Co., Baltimore, Md.  
Eureka Supply Co., Chattanooga, Tenn.  
Meyers Mfg. Co., F. J., Hamilton, O.  
Ohio Elevator & Machine Co., The, Columbus, O.
- Barges. (Steel)**  
American Bridge Co., of New York, N. Y.
- Bar Iron. (Reduced and Galvanized.)**  
Bourne-Fuller Co., The, Cleveland, Ohio.  
Carnegie Steel Co., Pittsburgh, Pa.  
Lackawanna Steel Co., Lackawanna, N. Y.
- Bars. (Steel, Rounds, Flats and Squares.)**  
Gulf States Steel Co., Birmingham, Ala.  
Pardee Works, Co., Perth Amboy, N. J.
- Bars, Wire, Wire Fabric, etc. (For Reinforced Concrete.)**  
Cincinnati Iron & Steel Co., Cincinnati, O.  
Corrugated Bar Co., Buffalo, N. Y.  
Hoffman & Co., Inc., R. C., Baltimore, Md.  
Jones & Laughlin Steel Co., Pittsburgh, Pa.  
Laclede Steel Co., St. Louis, Mo.
- Bearings. (Graphite and Bronze.)**  
Graphite Lubricating Co., Bound Brook, N. J.
- Bearings. (Oilless.)**  
Graphite Lubricating Co., Bound Brook, N. J.  
Metaine Co., Long Island City, N. Y.
- Bedford Stone**  
Bedford Steam Stone Works, Bedford, Ind.
- Belt. (Leather, Canvas, Rubber.)**  
American Supply Co., Providence, R. I.  
Bailley Leiby Co., Charleston, S. C.  
Baltimore Belting Co., Baltimore, Md.  
Cameron & Barkley Co., Charleston, S. C.  
Chesapeake Belting Co., Baltimore, Md.  
Druid Oak Belting Co., Inc., Baltimore, Md.  
Frederick Belting Co., St. Louis, Mo.  
Gandy Belting Co., Baltimore, Md.  
Goodyear Tire & Rubber Co., Akron, Ohio.  
Graton & Knight Mfg. Co., Worcester, Mass.  
Main Belting Co., Phila., Pa.  
Schierer Co., Ohio, A., New York, N. Y.  
Smith-Gortner Co., Richmond, Va.
- Belt. (Chain.)**  
Bartlett & Snow Co., C. O., Cleveland, O.  
Caldwell & Sons Co., H. W., Chicago, Ill.  
Jeffrey Mfg. Co., Columbus, O.  
Link-Belt Co., Philadelphia, Pa.
- Belt Cement.**  
Graton & Knight Mfg. Co., Worcester, Mass.
- Belt Conveyors.**  
Jeffrey Mfg. Co., Columbus, O.
- Belt Dressing.**  
Dixon Crucible Co., Joseph, Jersey City, N. J.  
Gandy Belting Co., Baltimore, Md.  
Graton & Knight Mfg. Co., Worcester, Mass.
- Belt Lacing. (Leather.)**  
Graton & Knight Mfg. Co., Worcester, Mass.
- Belt Lacing and Supplies. [See Belting. Leather, Canvas, Rubber.]**
- Bicarbonate Soda. (Sap Stain Lumber Dip.)**  
Church & Dwight Co., New York, N. Y.
- Billets. (Basic Open Hearth Quality.)**  
Gulf States Steel Co., Birmingham, Ala.
- Blackboards. (Slate.)**  
East Hanger Co., State Co., The, East Hanger, Pa.  
Johnson, E. J., New York, N. Y.
- Blocks. (Paving Cressed.)**  
American Cressote Works, New Orleans, La.
- Block Fillers**  
Barber Asphalt Paving Co., Philadelphia, Pa.  
Barrett Mfg. Co., Phila., Pa.  
Standard Oil Co., Newark, N. J.  
U. S. Asphalt Refining Co., New York, N. Y.
- Blowers and Exhaust Fans.**  
American Blower Co., Detroit, Mich.  
Buffalo Forge Co., Buffalo, N. Y.  
General Electric Co., Schenectady, N. Y.  
Green Fuel Economizer Co., Mattawan, N. Y.  
Raymond Bros. Impact Pulv. Co., Chicago, Ill.  
South Atlantic Blow Pipe & Sheet Metal Co., Savannah, Ga.  
Sturtevant Co., B. F., Hyde Park, Boston, Mass.
- Blueprinters.**  
Childrey Co., Richmond, Va.
- Bollers.**  
Hobcock & Wilcox Co., New York, N. Y.  
Cameron & Barkley Co., Charleston, S. C.  
Casey-Hedges Co., Chattanooga, Tenn.  
Chattanooga Roller & Tank Co., Chattanooga, Tenn.  
Chicago House Wrecking Co., Chicago, Ill.  
Cincinnati Roller Works, Cincinnati, Pa.  
Cole Mfg. Co., R. D., Newnan, Ga.  
Harley Roller Works, Montgomery, Ala.  
Keeler Co., E., Williamsport, Pa.  
Lookout Roller & Mfg. Co., Chattanooga, Tenn.  
Lombard Iron Works, Augusta, Ga.  
Mecklenburg Iron Works, Charlotte, N. C.  
Murray Iron Works, Burlington, Ia.  
Phoenix Iron Works Co., Meadville, Pa.  
Schofield Iron Works, Macon, Ga.  
Southern Engine & Boiler Works, Jackson, Tenn.  
Valk & Murdoch Iron Works, Charleston, S. C.  
Vogt Machine Co., Henry, Louisville, Ky.  
Walsh & Weldner Roller Co., Chattanooga, Tenn.  
Zelmer Supply Co., Walter A., St. Louis, Mo.
- Boiler Covering.**  
Chesapeake Roofing & Pipe Covering Co., Inc., Baltimore, Md.
- Boiler Graphite.**  
Dixon Crucible Co., Joseph, Jersey City, N. J.
- Boiler Tubes. [See Tubes, Boiler.]**
- Bolts, Nuts, Rivets, Studs and Washers.**  
Progressive Mfg. Co., Torrington, Conn.  
Republic Iron & Steel Co., Youngstown, O.  
Upon Nut Co., The, Cleveland, O.
- Bonds. (Surety, etc.)**  
Fidelity & Deposit Co. of Baltimore, Baltimore, Md.
- Bottling Outfits.**  
Viller Mfg. Co., Milwaukee, Wis.
- Brass Goods.**  
Bailley Leiby Co., Charleston, S. C.  
Buckeye Iron & Brass Works, Dayton, O.  
Lunkenheimer Co., The, Cincinnati, Ohio.  
Powell Co., Wm., Cincinnati, O.
- Brass Railing and Grilles.**  
Newman Mfg. Co., Cincinnati, Ohio
- Brewers' Machinery.**  
Viller Mfg. Co., Milwaukee, Wis.
- Brick. (Acid.)**  
Hood Brick Co., B. Mifflin, Atlanta, Ga.
- Brick. (Building.)**  
Am. Enamelled Brick & Tile Co., New York, N. Y.  
Brookhaven Pressed Brick & Mfg. Co., Brookhaven, Miss.
- Brick. (Hood.)**  
Hood Brick Co., B. Mifflin, Atlanta, Ga.
- Brick. (Kiln.)**  
Am. Enamelled Brick & Tile Co., New York, N. Y.
- Brick. (Enamelled.)**  
Am. Enamelled Brick & Tile Co., New York, N. Y.
- Brick. (Fire.)**  
Brookhaven Pressed Brick & Mfg. Co., Brookhaven, Miss.
- Brick. (Kiln.)**  
Kilian Fireproofing & Brick Works, Kilian, S. O.  
Louisville Fire Brick Works, Highland Park, Ky.  
Mexico Brick & Fire Clay Co., Mexico, Mo.  
Pomona Terra-Cotta Co., Pomona, N. C.  
Standard Brick Co., Macon, Ga.  
Stevens' Sons Co., H., Macon, Ga.  
Union Mining Co., Mt. Savage, Md.
- Brick. (Paving.)**  
Carlyle Paving Brick Co., Portsmouth, O.  
Copeland-Ingalls Shale Brick Co., Birmingham, Ala.  
Dunn Wire-Out-Lug Brick Co., Connant, Ohio.  
Southern Clay Mfg. Co., Chattanooga, Tenn.  
Southern Paving Brick Mfg. Assn., Birmingham, Ala.  
Standard Brick Co., Macon, Ga.
- Brick and Clayworking Machinery and Supplies.**  
Chase Fdry. & Mfg. Co., Columbus, O.  
Fernholtz Brick Machinery Co., St. Louis, Mo.  
Freese & Co., E. M., Galton, O.  
Steele & Sons, J. J., Marietta, N. C.
- Bridges. (Concrete.)**  
Cunningham Construction Co., Shreveport, La.  
Luten, Daniel B., Indianapolis, Ind.  
Requarth Co., O. W., Charlotte, N. C.  
Turner, O. A. P., Minneapolis, Minn.
- Bridges. (Rolling Lift.)**  
Scherzer Rolling Lift Bridge Co., Chicago, Ill.
- Bridges. (Steel.)**  
American Bridge Co. of New York, N. Y.  
Belmont Iron Works, Philadelphia, Pa.  
Case Crane & Engineering Co., Columbus, Ohio.  
Champion Bridge Co., Wilmington, Ohio.  
Chicago Bridge & Iron Works, Chicago, Ill.  
Cunningham Construction Co., Shreveport, La.  
East St. Louis Bridge Co., East St. Louis, Ill.  
Richmond Structural Steel Co., Richmond, Va.  
Scherzer Rolling Lift Bridge Co., Chicago, Ill.  
Vincennes Bridge Co., Vincennes, Ind.  
Virginia Bridge & Iron Co., Roanoke, Va.
- Bridge and Structural Iron Paints.**  
Chattanooga Paint Co., Chattanooga, Tenn.
- Bridge Builders. (Timber.)**  
Murray & Co., Inc., W. D., Norfolk, Va.
- Brimstone.**  
Union Sulphur Co., New York, N. Y.
- Buckets. (Clam Shell.)**  
Hayward Company, New York, N. Y.  
Williams Company, G. H., Cleveland, Ohio.
- Buckets. (Dredging, Excavating, Sewer, etc.)**  
Hayward Co., New York, N. Y.  
Mead-Morrison Mfg. Co., East Boston, Mass.  
Monaghan Mch. Co., Chicago, Ill.  
Williams Co., The G. H., Cleveland, O.
- Buckets. (Grab.)**  
Hunt Co., Inc., O. W., West New Brighton, N. Y.
- Buckets. (Orange Peel.)**  
Hayward Co., The, New York, N. Y.
- Buckets. (Ore Handling.)**  
Caldwell & Son Co., H. W., Chicago, Ill.  
Hayward Co., New York, N. Y.  
Link-Belt Co., Philadelphia, Pa.  
Williams Co., The G. H., Cleveland, O.
- Buhr Stones.**  
Starr Co., B. F., Baltimore, Md.
- Builders and Contractors.**  
Interstate Const. Co., Louisville, Ky.  
Stone & Webster Eng. Corp., Boston, Mass.  
Turner, O. A. P., Minneapolis, Minn.  
White Companies, J. G., New York, N. Y.
- Building Stone**  
Atlantic Stone Co., Atlanta, Ga.  
Bedford Steam Stone Works, Bedford, Ind.
- Building Supplies.**  
Chicago House Wrecking Co., Chicago, Ill.  
Southern Hauling Material Co., Norfolk, Va.
- Burners. (Oil.) [See Fuel Oil Equipments.]**
- Bushings. (Graphite, Bronze and Wood.)**  
Graphite Lubricating Co., Bound Brook, N. J.
- Bushings. (Oilless.)**  
Graphite Lubricating Co., Bound Brook, N. J.  
Metaine Co., Long Island City, N. Y.
- Cables.**  
Hroderick & Bascom Rope Co., St. Louis, Mo.  
Roebeling's Sons Co., John A., Trenton, N. J.
- Cables and Wires. (Insulated.)**  
American Steel & Wire Co., Chicago, Ill.
- Cableways. (Overhead Suspension.)**  
Ambrusen Co., (Tramway Department, New York, N. Y.)
- Cables and Wires. (Insulated.)**  
American Steel & Wire Co., Chicago, Ill.
- Cableways. (Overhead Suspension.)**  
Ambrusen Co., (Tramway Department, New York, N. Y.)
- Cann and Box Making Machinery. (Tin.)**  
Am Machine Co., Mar. Mt. Vernon, N. Y.  
Hiss Co., E. W., Brooklyn, N. Y.
- Canning Machinery and Supplies.**  
Robins & Co., A. K., Baltimore, Md.  
Sprague Canning Machinery Co., Chicago, Ill.
- Carborundum Paper and Cloth.**  
Carborundum Co., Niagara Falls, N. Y.
- Cars. (Dump, Industrial, Logging and Mine.)**  
Austin Mfg. Co., Chicago, Ill.  
Chase Fdry. & Mfg. Co., Columbus, O.  
Card Geo. B., Cincinnati, Ohio.  
Electric Wheel Co., (Mfrs.), Quincy, Ill.  
Georgia Car & Locomotive Co., Atlanta, Ga.  
Hunt Co., O. W., Inc., West New Brighton, N. Y.  
Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.  
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- Cars. (Passenger and Freight.) [See Railroad Equipment and Supplies.]**
- Car Unloaders.**  
Bonney Supply Co., Rochester, N. Y.
- Car Wheels, Axles and Trucks.**  
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- Castings. (Aluminum.)**  
Aluminum Company of America, Pittsburgh, Pa.
- Castings. (Brass and Bronze.)**  
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Triumph Electric Co., Cincinnati, O.
- Castings. (Gray Iron.)**  
Columbian Iron Works, Chattanooga, Tenn.  
Georgia Car & Locomotive Co., Atlanta, Ga.  
Glamorgan Pipe & Foundry Co., Lynchburg, Va.  
Hull's Sons, D. F., Hagerstown, Md.  
Phoenix Iron Works Co., Meadville, Pa.  
U. S. East Iron Pipe & Fdry. Co., Burlington, N. J.  
Valk & Murdoch Iron Works, Charleston, S. C.  
Westbrook Elevator Co., Danville, Va.
- Castings. (Malleable Iron and Steel.)**  
Columbus Malleable Iron Co., Columbus, Ohio.  
General Malleable Co., Warren, O.  
Missouri Malleable Iron Co., East St. Louis, Ill.
- Castings. (Steel.)**  
Orficine Steel Castings Co., Lansdowne, Pa.  
Hoffman & Co., Inc., R. C., Baltimore, Md.  
Phoenix Iron Works Co., Meadville, Pa.  
Riverside Steel Casting Co., Newark, N. J.
- Ceilings. (Metal.)**  
Edwards Manufacturing Co., Cincinnati, O.  
Keighley Metal Cell. & Mfg. Co., S., Pittsburgh, Pa.
- Cement.**  
Climax Portland Cement Corp., Kingsport, Tenn.  
Dixie Portland Cement Co., Chattanooga, Tenn.  
Hartman Portland Cement Co., Vm. G., Philadelphia, Pa.  
Kirkpatrick Sand & Cement Co., Birmingham, Ala.  
Knox Portland Cement Co., Inc., Louisville, Ky.  
Lehigh Portland Cement Co., Allentown, Pa.  
Southern States Portland Cement Co., Rockmart, Ga.  
Standard Portland Cement Co., Leeds, Ala.
- Cement Machinery.**  
Allis-Chalmers Mfg. Co., Milwaukee, Wis.  
Power & Mining Machinery Co., Oudaby, Wis.  
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
- Chains. (Dredge, Quarry, Steam Shovel.)**  
Welmer Chain & Iron Co., Lebanon, Pa.
- Chemists. (Analytical and Consulting.)**  
Davis, Geo. C., Philadelphia, Pa.  
Freubling & Robertson, Richmond, Va.  
Hunt & Co., Robt. W., Chicago, Ill.  
Little Inc., A. D., Boston, Mass.  
Meade, Richard K., Baltimore, Md.  
Pittsburgh Testing Laboratory, Pittsburgh, Pa.  
Wiley & Co., Baltimore, Md.
- Chloride Accumulator.**  
Electric Storage Battery Co., The, Philadelphia, Pa.
- Chucks.**  
Morse Twist Drill & Mch. Co., New Bedford, Mass.
- Cities and Towns. (Commercial and Industrial Opportunities.) [See Industrial, Agricultural and Commercial Opportunities.]**
- Clamps. (For Concrete Forms.)**  
Sterling Wheelbarrow Co., Milwaukee, Wis.
- Clayworking Machinery. [See Brick and Clayworking Machinery and Supplies.]**
- Cleaning Compound. (Floors, Etc.)**  
India Alkali Works, Boston, Mass.
- Clutches. (Friction.)**  
Affiliated Manufacturers Co., Milwaukee, Wis.  
Medart Patent Pulley Co., St. Louis, Mo.  
Moore & White Co., The, Philadelphia, Pa.
- Coal.**  
Climax Portland Cement Corp., Kingsport, Tenn.  
Climax Fuel Co., Spartanburg, S. C.  
Consolidation Coal Co., Inc., New York, N. Y.  
Tennessee Coal, Iron & R. R. Co., H'mgh'm, Ala.
- Coal Cutters.**  
Jeffrey Mfg. Co., Columbus, O.
- Coal Handling Machinery.**  
Bartlett & Snow Co., C. O., Cleveland, O.  
G. Ford Wood Co., Hudson, N. Y.  
Guarantee Construction Co., New York, N. Y.  
Hayward Co., New York, N. Y.  
Hunt Co., O. W., Inc., West New Brighton, N. Y.  
Jeffrey Mfg. Co., Columbus, O.  
Link-Belt Co., Philadelphia, Pa.  
Weller Mfg. Co., Chicago, Ill.
- Coal Tar and By-Products.**  
Harrett Mfg. Co., Philadelphia, Pa.
- Coal Tipples.**  
American Bridge Co. of New York, N. Y.
- Coke.**  
Tennessee Coal, Iron & R. R. Co., H'mgh'm, Ala.
- Cold Store Doors.**  
Brecht Co., The, St. Louis, Mo.
- Collections.**  
Craig Mercantile Agency, Houston, Texas.
- Colleges and Schools.**  
Converse College, Spartanburg, S. C.  
Kennerly Polytechnic Institute, Troy, N. Y.
- Colleges. (Technical.)**  
Rensselaer Polytechnic Institute, Troy, N. Y.
- Columns. (Porch, Interior, Pergola.)**  
Nickerson Mfg. Co., Knoxville, Tenn.
- Commission Merchants. (Export & Import.)**  
Duckett & Co., A. W., New York, N. Y.
- Concrete Chutes.**  
O. H. & E. Mfg. Co., Inc., Milwaukee, Wis.
- Concrete Construction. (Reinforced.)**  
Corrugated Bar Co., Buffalo, N. Y.  
Cunningham Construction Co., Shreveport, La.  
Eldred, E., Columbus, O.  
Foster & Oughton Co., Nashville, Tenn.  
Guarantee Construction Co., New York, N. Y.  
Jeffrey Mfg. Co., Columbus, O.  
Requarth Co., O. W., Charlotte, N. C.  
Turner, O. A. P., Minneapolis, Minn.
- Concrete Curb Protector. (Steel.)**  
Steel Protected Concrete Co., Philadelphia, Pa.
- Concrete Mixers. [See Mixers. (Concrete)]**
- Concrete Reinforcing Bars.**  
Bourne-Fuller Co., The, Cleveland, O.  
Carnegie Steel Co., Pittsburgh, Pa.  
Corrugated Bar Co., Buffalo, N. Y.  
Dietrich Brothers, Baltimore, Md.  
Gulf States Steel Co., Birmingham, Ala.  
Hoffman & Co., R. C., Baltimore, Md.  
Jones & Laughlin Steel Co., Pittsburgh, Pa.  
Lackawanna Steel Co., Lackawanna, N. Y.  
Laclede Steel Co., St. Louis, Mo.  
Pardee Works, Co., Perth Amboy, N. J.  
Republic Iron & Steel Co., Youngstown, O.  
Sweets Steel Co., Williamsport, Pa.
- Concrete Reinforcing Wire and Wire Fabric.**  
American Steel & Wire Co., Chicago, Ill.  
Roebeling's Sons Co., John A., Trenton, N. J.
- Condensers.**  
Alberger Pump & Condenser Co., New York, N. Y.  
Allis-Chalmers Mfg. Co., Milwaukee, Wis.  
Greson-Morris Co., Philadelphia, Pa.  
Dean Bros., Steam Pump Wks., Indianapolis, Ind.  
Westinghouse Machine Co., Pittsburgh, Pa.  
York Mfg. Co., York, Pa.
- Conductor Pipes.**  
Edwards Mfg. Co., Cincinnati, O.
- Conduits. (Electrical.)**  
National Metal Molding Co., Pittsburgh, Pa.
- Conduits. (Interior.)**  
National Metal Molding Co., Pittsburgh, Pa.
- Conduits. (Steel.)**  
National Metal Molding Co., Pittsburgh, Pa.
- Conduit Fittings.**  
National Metal Molding Co., Pittsburgh, Pa.





**Engineers.****LIGHTING**

Ford, Bacon & Davis, New York, N. Y.  
McCrory & Co., J. R., Atlanta, Ga.  
Racker, B. Parks, Charlotte, N. C.

**MECHANICAL**

Arnold Co., The, Chicago, Ill.  
Graves Engineering Co., Inc., New York, N. Y.  
Kelly, Thos. G., Cincinnati, Ohio.  
Lewis, Fred H., Birmingham, Ala.  
Lide, Martin J., Birmingham, Ala.  
McLendon, A. S., Chattanooga, Tenn.  
Meade, Richard K., Baltimore, Md.  
Stevens, Harry, Washington, D. C.  
Tucker & Laxton, Charlotte, N. C.

**Mining**

Brown & Clarkson, Washington, D. C.  
Grimsley, G. P., Martinsburg, W. Va.  
Hogue Engineering Ass'n, Charleston, W. Va.  
Jones, E. M., Chattanooga, Tenn.  
Renshaw & Breece, Huntington, W. Va.

**Municipal**

Anderson & Christie, Charlotte, N. C.  
Brown & Clarkson, Washington, D. C.  
Crosby, Walter W., Baltimore, Md.  
Dabney Engineering Co., Memphis, Tenn.  
Elrod, Henry E., Dallas, Texas.  
Graves Engineering Co., Inc., New York, N. Y.  
Greiner & Whitman, Baltimore, Md.  
Havely, H. B., Monroe, N. C.  
Hayward & Ashby Rocky Mount, N. C.  
Hogue Engineering Ass'n, Charleston, W. Va.  
Knowles, Morris, Pittsburgh, Pa.  
McCrory Bros. & Cheves, Inc., Charleston, S. C.  
McCrory Co., J. B., Atlanta, Ga.  
Moore & Thomas, Vicksburg, Miss.  
Paw, Arthur, Atlanta, Ga.  
Shand Engineering Co., Columbia, S. C.  
Walker Engineering Corp., Tampa, Fla.  
White, Gilbert O., Charlotte, N. C.

**Paving and Road**

Anderson & Christie, Charlotte, N. C.  
Atlantic Engineering Co., Savannah, Ga.  
Crosby, Walter W., Baltimore, Md.  
Elrod, Henry E., Dallas, Texas.  
Havely, H. B., Monroe, N. C.  
Institute of Industrial Research, Washington, D. C.  
McCrory Bros. & Cheves, Inc., Charleston, S. C.  
Moore & Thomas, Vicksburg, Miss.  
Shand Engineering Co., Columbia, S. C.  
White, Gilbert O., Charlotte, N. C.

**Public Service Properties**

Day & Zimmerman, Philadelphia, Pa.  
Ferros Co., The H. G., Memphis, Tenn.  
Ford, Bacon & Davis, New York, N. Y.  
Gillman, Harry L., Boston, Mass.  
Graves Engineering Co., Inc., New York, N. Y.  
Seaford Engineering Co., Philadelphia, Pa.  
Stone & Webster Eng. Corp., Boston, Mass.  
Weller, Francis R., Washington, D. C.  
White Companies, J. G., New York, N. Y.

**Refrigerating**

McCandlish Eng. Co., Robert M., Kansas City, Mo.

**Reinforced Concrete** (Bridges, Buildings, etc.)

Cunningham Construction Co., Shreveport, La.  
Elford, E., Columbus, O.  
Foster & O'reighton Co., Nashville, Tenn.  
Guarantee Construction Co., New York, N. Y.  
Hayward & Ashby, Rocky Mount, N. C.  
Interstate Const. Co., Louisville, Ky.  
Luten, Daniel B., Indianapolis, Ind.  
Martin Co., A. J., Portsmouth, Ohio.  
Requarth Co., C. W., Charlotte, N. C.  
Savannah Eng. & Construction Co., Savannah, Ga.  
Spiker, William O., Atlanta, Ga.  
Tucker & Laxton, Charlotte, N. C.  
White Companies, J. G., New York, N. Y.

**River and Harbor**

Gillman, Harry L., Boston, Mass.

**Sewerage and Water-Works**

Anderson & Christie, Charlotte, N. C.  
Brown & Clarkson, Washington, D. C.  
Dabney Engineering Co., Memphis, Tenn.  
Ford, Bacon & Davis, New York, N. Y.  
Greiner & Whitman, Baltimore, Md.  
Havely, H. B., Monroe, N. C.  
Hill, Nicholas S., Jr., and S. F. Ferguson, New York, N. Y.  
Knowles, Morris, Pittsburgh, Pa.  
Mayer, J. H., Birmingham, Ala.  
Miller, Hiram Allen, Boston, Mass.  
Myers, E. W., Greensboro, N. C.  
Paw, Arthur, Atlanta, Ga.  
Quick, Alfred M., Baltimore, Md.  
Stevens, Harry, Washington, D. C.  
Walker Engineering Corp., Tampa, Fla.  
White Companies, J. G., New York, N. Y.  
White Gilbert O., Charlotte, N. C.

**Steel Work and Rolling Mills**

Smythe Co., The S. R., Pittsburgh, Pa.

**Structural Steel**

Foster & O'reighton Co., Nashville, Tenn.  
Shearer, C. E., Memphis, Tenn.  
Spiker, Wm. O., Atlanta, Ga.  
Renshaw & Breece, Huntington, W. Va.

**Theater Construction**

Gatlin, W. R., Hopkinsville, Ky.

**Engines****Compressed Air**

Duke Engine Co., Grand Haven, Mich.

**Gas and Gasoline**

Affiliated Manufacturers Co., Milwaukee, Wis.  
Allis-Chalmers Manufacturing Co., Milwaukee, Wis.  
Bruce-Macbeth Engine Co., Cleveland, O.  
Cooper Co., O. & G., Mt. Vernon, Ohio.  
De La Vergne Machine Co., New York, N. Y.  
Mitsui, A., New York, N. Y.  
Portsmouth Engine Co., Portsmouth, O.  
Southern Engine & Boiler Works, Jackson, Tenn.  
Van Dusen, Roy Co., The, Columbus, O.  
Westinghouse Machine Co., The, Pittsburgh, Pa.

**Oil**

Bolinders Co., New York, N. Y.  
Chicago Pneumatic Tool Co., Chicago, Ill.  
De La Vergne Machine Co., New York, N. Y.  
Fairbanks-Morse & Co., Atlanta, Ga.  
Metz, A., New York, N. Y.  
Moore & Sons Corp., Samuel L., Elizabeth, N. J.  
Power Mfg. Co., Lima, Ohio.  
Snow Steam Pump Plant, The, New York, N. Y.

**Steam**

Allis-Chalmers Manufacturing Co., Milwaukee, Wis.  
Ball Engine Co., Erie, Pa.  
Buffalo Forge Co., Buffalo, N. Y.  
Cameron & Barker Co., Charleston, S. C.  
Chicago House Wrecking Co., Chicago, Ill.  
Cooper Co., O. & G., Mt. Vernon, Ohio.  
Duke Engine Co., Grand Haven, Mich.  
Griffith & Wedge Co., The, Zanesville, O.  
Houston, Stanwood & Gamble Co., Cincinnati, O.  
Lefel & Co., James, Springfield, O.  
Lombard Iron Works, Augusta, Ga.  
Mecklenburg Iron Works, Charlotte, N. C.  
Murray Iron Works Co., Burlington, Ia.  
Phoenix Iron Works Co., Nashville, Ga.  
Schofield Iron Works, Macon, Ga.  
Sturtevant Co., B. F., Hyde Park, Boston, Mass.  
Viller Mfg. Co., Milwaukee, Wis.  
Westinghouse Machine Co., Pittsburgh, Pa.

**Envelopes**

ong & Selden Co., Baltimore, Md.

**Excavating Machinery**

American Clay Machinery Co., The, Bucyrus, Ohio.  
American Steel Dredge Co., Fort Wayne, Ind.  
Bay City Dredge Works, Bay City, Mich.  
Byers Mach. Co., The John F., Ravensna, O.  
Economy Excavator Co., Iowa Falls, Iowa.  
Fairbanks Steam Shovel Co., Marion, O.  
Hayward Co., New York, N. Y.  
Jeffrey Mfg. Co., Columbus, O.  
Lidgerwood Mfg. Co., New York, N. Y.  
Marion Steam Shovel Co., Marion, O.  
Monaghan Machine Co., Chicago, Ill.  
Morris Machine Works, Baldwinville, N. Y.  
National Hoisting Engine Co., Harrison, N. J.  
Thaw Automatic Shovel Co., Lorain, Ohio.  
Williams Co., The G. H., Cleveland, O.

**Excavators (Trench)**

Bay City Dredge Works, Bay City, Mich.  
Economy Excavator Co., Iowa Falls, Iowa.  
Fairbanks Steam Shovel Co., Marion, O.  
Hayward Co., The, New York, N. Y.  
Monaghan Machine Co., Chicago, Ill.

**Excelsior Machinery**

Kline, Lewis T., Alpena, Mich.

**Exhaust Heads**

American Spiral Pipe Works, Chicago, Ill.

Exhibits. (Machinery Builders' Equipment and Supplies.)  
Builders' Exchange, Baltimore, Md.

**Expansion Joints**

Badger & Sons Co., E. B., Boston, Mass.

Expansion Joints. (Street and Road.)  
Philip Carey Co., The, Cincinnati, Ohio.

Expanded Metal. [See Latb.]

**Explosives**

Du Pont Powder Co., Wilmington, Del.  
Aetna Explosive Co., Inc., New York, N. Y.

Export Agents. (South America.)  
Lutz, Friedr W., Richmond, Va.

Factory Sites. (Town and Railroad.) [See Industrial, Agricultural and Commercial Opportunities.]  
Fans. (Electric.)  
General Electric Co., Schenectady, N. Y.

Fans. (Ventilating.) [See Blowers, Exhaust Fans.]  
Fastener Driving Machine. (Corrugated Joint.)  
Saranac Machine Co., Benton Harbor, Mich.

**Feed-Water Heaters and Purifiers**

American Water Softener Co., Philadelphia, Pa.  
Blake & Knowles Steam Pump Works, East Cambridge, Mass.  
Murray Iron Works Co., Burlington, Ia.  
National Pipe Bending Co., New Haven, Conn.  
Scales & Sons Co., Wm. B., Pittsburgh, Pa.  
Stewart Heater Co., Buffalo, N. Y.

Feed-Water Heater and Purifier and Oil Separator Combined.  
Blake & Knowles Steam Pump Works, East Cambridge, Mass.  
Platt Iron Works Co., Dayton, Ohio.  
Stewart Heater Co., Buffalo, N. Y.

**Felt. (Building, Sheathing)**

Harrett Mfg. Co., Philadelphia, Pa.

Fencing. (Corrugated, Galvanized, Concrete.)  
Amer. Sheet & Tin Plate Co., Pittsburgh, Pa.

Fencing. (Woven Wire Field.)  
American Steel & Wire Co., Chicago, Ill.  
Cyclone Fence Co., Waukegan, Ill.  
Gulf States Steel Co., Birmingham, Ala.

Fencing, Entrance Gates. (Iron, Steel, Wire.)  
American Steel & Wire Co., Chicago, Ill.  
Hollie Iron & Wire Wks., J. E., Detroit, Mich.  
Cincinnati Iron Fence Co., Cincinnati, Ohio.  
Cyclone Fence Co., Waukegan, Ill.  
Dow Wire & Iron Works, Louisville, Ky.  
Dufur & Co., Baltimore, Md.  
Eureka Supply Co., Chattanooga, Tenn.  
New Jersey Wire Cloth Co., Trenton, N. J.  
Ohio Elevator & Mach. Co., The, Columbus, O.

Fertilizer Machy. [See also Phosphate Mch.]  
K-H Pulverizer Co., Inc., New York, N. Y.  
Stedman's Foundry & Machine Works, Aurora, Ind.  
Valk & Murdoch Iron Works, Charleston, S. C.

**Files**

Barnett Co., G. & H., Philadelphia, Pa.  
Nicholson File Co., Providence, R. I.

Filters. (Water, for Domestic and Industrial Purposes.)  
American Water Softener Co., Philadelphia, Pa.  
International Filter Co., Chicago, Ill.  
New York Con. Jewell Fil. Co., New York, N. Y.

Fire Clay. [See Brick, Fire.]

Fire Door Fixtures.  
Richmond Safety Gate Co., Richmond, Ind.  
Victor Mfg. Co., Newburyport, Mass.

**Fire Extinguishers**

Badger & Sons Co., E. B., Boston, Mass.

**Fire Escapes**

Hollie Iron & Wire Works, J. E., Detroit, Mich.  
Chesapeake Iron Works, Baltimore, Md.  
Eureka Supply Co., Chattanooga, Tenn.

**Fire Hose**

Eureka Fire Hose Mfg. Co., New York, N. Y.

**Fire Places. (Brick and Tile)**

Hood Brick Co., B. Middle, Atlanta, Ga.

Fireproof Building Construction. [See Concrete Construction.]

**Fireproof Building Material**

Bannon Pipe Co., E. Louisville, Ky.  
Johns-Manville Co., H. W., New York, N. Y.

**Fireproof Doors and Shutters**

Kinnear Mfg. Co., Columbus, O.  
Richmond Safety Gate Co., Richmond, Ind.  
Victor Mfg. Co., Newburyport, Mass.  
Wagner's Sons Co., J. F., Louisville, Ky.  
Wilson Corp., J. G., New York, N. Y.

Fireproof Windows. [See Window Frames and Sashes (Fireproof).]

**Fittings. (Wire Rope)**

Waterbury Co., New York, N. Y.

**Fireproofing. (Brick and Tile)**

Hood Brick Co., B. Middle, Atlanta, Ga.

**Flanges. (Iron and Steel)**

American Cast Iron Pipe Co., Birmingham, Ala.  
American Pipe & Construction Co., Phila., Pa.  
American Spiral Pipe Works, Chicago, Ill.  
Dart Mfg. Co., E. M., Providence, R. I.  
Glanorgan Pipe & Foundry Co., Lynchburg, Va.  
U. S. Cast Iron Pipe & Fdry. Co., Burlington, N. J.  
Wood & Co., R. D., Philadelphia, Pa.

**Flooring. (Composition)**

Petro-Pulp Floor Co., Kansas City, Mo.

**Flooring. (Oreosod Block)**

Republic Oreosod Co., Indianapolis, Ind.

**Flooring. (Hardwood, Maple, Oak)**

Whiting, William S., Elizabethton, N. O.

**Flour and Grist Mill Machinery and Supplies**

Caldwell & Sons Co., H. W., Chicago, Ill.  
Salem Foundry & Machine Works, Salem, Va.  
Starr Co., B. F., Baltimore, Md.  
Wolf Co., Chambersburg, Pa.

**Flue Lining**

Owensboro Sewer Pipe Co., Owensboro, Ky.  
Southern Sewer Pipe Co., Birmingham, Ala.

**Forges**

Buffalo Forge Co., Buffalo, N. Y.

**Forgings**

Weimer Chain & Iron Co., Lebanon, Pa.

**Foundations. (Waterproof)**

Requarth Co., O. W., Charlotte, N. C.

**Foundry Equipment and Supplies**

Hill-Brunner Fdry, Supply Co., Cincinnati, O.  
Newport Sand Bank Co., Inc., Newport, Ky.

**Foundry Facings. (Talc and Soapstones)**

Georgia Talc Co., Asheville, N. C.  
Hill-Brunner Fdry, Supply Co., Cincinnati, O.

**Foundry and Machine Shops**

Glanorgan Pipe & Foundry Co., Lynchburg, Va.  
Goldens Foundry & Machine Wks., Columbus, Ga.  
Granger & Co., Inc., Louisville, Ky.  
Lombard Iron Works, Augusta, Ga.  
Titus, E. K., Petersburg, Va.  
Valk & Murdoch Iron Works, Charleston, S. C.

**Frogs. [See Railroad Frogs and Switches.]****Fuel Economizer**

Green Fuel Economizer Co., Matieswan, N. Y.

**Fuel Oil**

Gulf Refining Co., Pittsburgh, Pa.  
Texas Co., The, Houston, Tex.  
U. S. Asphalt Refining Co., New York, N. Y.

**Furnaces. (For Industrial Purposes)**

Smythe Co., The S. R., Pittsburgh, Pa.

**Furniture. (Metal)**

The Van Dorn Iron Works Co., Cleveland, Ohio.

**Fuses. (Electrical)**

Economy Fuse & Mfg. Co., Chicago, Ill.

**Fuse Shells. (Renewable)**

Economy Fuse & Mfg. Co., Chicago, Ill.

**Fuses, Bases and Fittings**

Johns-Manville Co., H. W., New York, N. Y.

**Galvanized Steel and Iron**

American Sheet & Tin Plate Co., Pittsburgh, Pa.  
La Belle Iron Works, Steubenville, O.  
McCalla, Co., Harold, Philadelphia, Pa.  
Whitaker-Glessner Co., Portsmouth Plant, Portsmouth, Ohio.  
Wood Iron & Steel Co., Alan, Philadelphia, Pa.  
Youngstown Sheet & Tube Co., Youngstown, O.

**Galvanizing Machinery. (Sheet)**

Erie Foundry Co., Erie, Pa.

**Garage and House. (Portable)**

Dixie Culvert & Metal Co., Atlanta, Ga.  
Steel Products Co., The, Savannah, Ga.

**Garbage Disposal Plants**

Stacy-Bates Co., Minneapolis, Minn.

**Gas Blowers. (Turbine)**

Terry Steam Turbine Co., Hartford, Conn.

**Gas Engines. [See Engines, Gas.]****Gas Machines**

Kemp Mfg. Co., O. M., Baltimore, Md.  
Milburn Co., Alex. E., Baltimore, Md.

**Gas Plants**

Gas Engineering Co., Trenton, N. J.  
Power & Mining Machinery Co., Cudahy, Wis.  
Western Gas Construction Co., Ft. Wayne, Ind.

**Gas Producers**

Smythe Co., The S. R., Pittsburgh, Pa.  
Westinghouse Machine Co., Pittsburgh, Pa.  
Wood & Co., R. D., Philadelphia, Pa.

**Gasoline and Kerosene**

Gulf Refining Co., Pittsburgh, Pa.  
Texas Co., The, Houston, Tex.

**Gas and Steam Fitters' Tools**

Saunders' Sons, D., Tonkars, N. Y.

**Gears**

Caldwell & Sons Co., H. W., Chicago, Ill.  
Cresson-Morris Co., Philadelphia, Pa.  
James Mfg. Co., D. O., Chicago, Ill.  
Jeffrey Mfg. Co., Columbus, O.

**Generating Sets**

Sturtevant Co., B. F., Hyde Park, Boston, Mass.  
Triumph Electric Co., Cincinnati, O.

**Geologists**

Davis, Geo. O., Phila., Pa.  
Froehling & Robertson, Richmond, Va.  
Grimsley, G. P., Martinsburg, W. Va.

**Glass. (Plate, etc.)**

Binswanger & Co., Memphis, Tenn.

**Governors. (Steam Engine)**

Pickering Governor Co., Portland, Conn.

**Grain Elevator Supplies**

Caldwell & Sons Co., H. W., Chicago, Ill.  
Jeffrey Mfg. Co., Columbus, O.  
Link-Belt Co., Philadelphia, Pa.

**Granite**

Southern Marble & Granite Co., Spartanburg, S. C.

**Graphite**

Dixon Crucible Co., Joseph, Jersey City, N. J.

**Grates and Grate Bars**

Huber Grate Bar & Stoking Co., Baltimore, Md.  
Thomas Grate Bar Co., Birmingham, Ala.

**Gravel**

Arundel Sand & Gravel Co., Baltimore, Md.

**Gravel. (Roofing and Road)**

American Ballast Co., Knoxville, Tenn.

**Gravity Spiral Chutes**

Mathews Gravity Carrier Co., Ellwood City, Pa.

**Greases**

Albany Lubricating Co., New York, N. Y.

**Grease Cups**

Albany Lubricating Co., New York, N. Y.

**Greases and Lubricating Compounds**

Albany Lubricating Co., New York, N. Y.  
Galena Signal Oil Co., Franklin, Pa.  
Robinson & Son Co., Wm. C., Baltimore, Md.  
Texas Co., The, Houston, Tex.

**Grinders. (Gypsum, Limestone, etc.)**

Stedman's Foundry & Machine Wks., Aurora, Ind.

**Grinding Wheels**

Carborundum Co., Niagara Falls, N. Y.

Vitrited Wheel Co., Westfield, Mass.

**Groovers**

Haither Bros. Saw Mfg. Co., Inc., Rochester, N. Y.

**Gunpowder**

Du Pont Powder Co., Wilmington, Del.

Aetna Explosive Co., Inc., New York, N. Y.

**Hammers. (Steam)**

Erie Foundry Co., Erie, Pa.

**Handle Machinery. [See Woodworking Mch.]****Hangers. [See Pulleys, Shafting and Hangers]****Hay Tools**

Myers & Bro., F. E., Ashland, Ohio.

**Heater. (Asphalt)**

Gummer & Son Co., F. D., The, Cleveland, Ohio.

**Heating Apparatus, Engineers and Contractors**

Allen-Scales Engineering Co., Inc., Nashville, Tenn.  
American Blower Co., Detroit, Mich.  
Buffalo Steam Pump Co., Buffalo, N. Y.  
Kelly, Thos. O., Cincinnati, Ohio.  
Sturtevant, B. F., Hyde Park, Boston, Mass.  
Walker Electric & Plumbing Co., Rome, Ga.

**Hoisting Machinery**

Byers Machine Co., The John F., Ravensna, Ohio.  
Duke Engine Co., Grand Haven, Mich.  
Erie Clutch & Pulley Co., Erie, Pa.  
Flory Mfg. Co., S., Bangor, Pa.  
Lidgerwood Mfg. Co., New York, N. Y.  
Link-Belt Co., Philadelphia, Pa.  
Mead-Morrison Mfg. Co., East Boston, Mass.  
Monaghan Machine Co., Chicago, Ill.  
Strodsburg Engine Works, Strodsburg, Pa.

**Holists**

## RAILROADS

Atlanta & West Point R. R., Atlanta, Ga.  
Carolina, Richmond & O. Ry., Johnson City, Tenn.  
Central of Georgia Ry., Savannah, Ga.  
Florida East Coast Ry., St. Augustine, Fla.  
Illinois Central Railroad Co., Chicago, Ill.  
Norfolk & Western Railway, Roanoke, Va.  
Seaboard Air Line, Norfolk, Va.  
Southern Railway System, Washington, D. C.

## Industrial Track Work. [See Railways, Ind.]

## Injectors.

Jenkins Bros., New York, N. Y.  
Lunkenheimer Co., The, Cincinnati, O.  
Randle Machinery Co., Cincinnati, O.  
Sellers & Co., Inc., Wm., Philadelphia, Pa.

## Insulating Materials.

General Electric Co., Schenectady, N. Y.  
John-Manville Co., H. W., New York, N. Y.

## Insurance.

Hartford Steam Boiler Inspector & Insurance Co., Hartford, Conn.

## Investment Securities.

Leach & Co., A. B., New York, N. Y.  
New First National Bank, Columbus, O.  
Powell, Guard & Co., Chicago, Ill.  
Provident Savings Bank & Trust Co., Cincinnati, Ohio.

## Iron.

Allegheny Steel Co., Pittsburgh, Pa.  
La Belle Iron Works, Steubenville, O.  
Republic Iron & Steel Co., Youngstown, O.  
Tennessee Coal, Iron & R. R. Co., Birmingham, Ala.  
Union Drawn Steel Co., Beaver Falls, Pa.  
Wood Iron & Steel Co., Alan, Philadelphia, Pa.

## Irrigation Machinery.

Cameron Steam Pump Wks., A. S., New York, N. Y.

## Joist Hangers.

The Van Dorn Iron Works Co., Cleveland, Ohio

## Kettles. (Steam Jacket.)

Badger & Sons Co., E. R., Boston, Mass.

## Lace Leather.

Graton & Knight Mfg. Co., Worcester, Mass.

## Lamps. (Arc and Incandescent.)

Boston Economy Lamp Division, National Lamp Works of General Electric Co., Danvers, Mass.  
General Electric Co., Schenectady, N. Y.  
Piedmont Electric Co., Asheville, N. C.

## Lamps. (Carbon and Tungsten.)

Sewman Electric Lamp Co., Cincinnati, O.

## Lamp Posts. (Electric, Gas.)

Western Gas Construction Co., Ft. Wayne, Ind.

## Lands. (Mineral, Timber, Farm, etc.) [See Industrial, Agricultural and Commercial Opportunities.]

## Landscape Architects (See Engineers.) [Landscape]

## Lathes. (Engine.)

Greaves, Klusman Tool Co., The, Cincinnati, O.

## Lawn Furniture. (Wire.)

Bolles Iron & Wire Works, J. E., Detroit, Mich.  
Cincinnati Iron Fence Co., Cincinnati, Ohio.  
Dufur & Co., Baltimore, Md.  
Dufur, Baggett & Co., Baltimore, Md.

## Lights. (Portable Acetylene.)

Milburn Co., Alex. N., Baltimore, Md.

## Liquor Filters.

International Filter Co., Chicago, Ill.

## Lithographers, Engravers.

Young & Selden Co., Baltimore, Md.

## Lockers (Steel)

Keighley Metal Ceiling Mfg. Co., S., Pittsburgh, Pa.  
Van Hurlingen, J. M., Atlanta, Ga.

## Locomotives.

## INDUSTRIAL.

Baldwin Locomotive Wks., The, Philadelphia, Pa.  
Climax Mfg. Co., Corry, Pa.  
Cord, Geo. H., Cincinnati, O.  
Davenport Locomotive Works, Davenport, Ia.  
Fate Co., J. D., Plymouth, Ohio.  
Jeffrey Mfg. Co., Columbus, O.  
Lima Locomotive Corporation, Lima, O.  
Porter Co., H. K., Pittsburgh, Pa.  
Southern Iron & Equipment Co., Altan, Ga.  
Thaw & Williams, Cincinnati, O.

## RAILWAY.

Baldwin Locomotive Wks., The, Philadelphia, Pa.  
Lima Locomotive Corporation, Lima, O.  
Porter Co., H. K., Pittsburgh, Pa.

## Looms and Weaving Machinery.

Crompton & Knowles Loom Works, Worcester, Mass.  
Uprass Co., Hopkinton, Mass.  
Mason Machine Works, Taunton, Mass.  
Saco-Lowell Shops, Boston, Mass.

## Loom Harness.

American Supply Co., Providence, R. I.

## Lubricants.

Albany Lubricating Co., New York, N. Y.  
Otis Elevator Co., New York, N. Y.

## Lubricants. (Graphite.)

Dixon Crucible Co., Joseph, Jersey City, N. J.

## Lumber.

Industrial Lumber Co., Elizabeth, La.

## Lumber. (Creosoted.)

American Creosote Works, New Orleans, La.  
National Lumber & Creosoting Co., Texarkana, Ark.

## Lumber. (Heavy Construction, Pitch Pine, etc.)

Industrial Lumber Co., Elizabeth, La.  
National Lumber & Creosot Co., Texarkana, Ark.

## Lumber Buggies.

Scots Steam Feed Works - Meridian, Miss.

## Lumber Stackers.

Scots Steam Feed Works, Meridian, Miss.

## Machinery. (Special.)

Bilco Co., E. W., Brooklyn, N. Y.  
Eagle Mfg. Co., Cincinnati, Ohio.  
Elms, Lewis T., Alpena, Mich.  
Universal Machine Co., Baltimore, Md.

## Machinery and Supplies. (New and Second-Hand Bargains.)

Assets Purchasing Co., Wheeling, W. Va.  
Birtwell, W. L., Phila., Pa.  
Boston Iron & Metal Co., Balto., Md.  
Central Transfer Co., Baltimore, Md.  
Chicago House Wrecking Co., Chicago, Ill.  
Cleveland Belting & Machinery Co., Cleveland, O.  
Detrick & Harvey Mch. Co., Baltimore, Md.  
Dusela & Son, New York, N. Y.  
Eagle Pipe Supply Co., Inc., New York, N. Y.  
Empire Mch. & Supply Co., Norfolk, Va.  
Lehman, Charles T., Birmingham, Ala.  
Lodge & Shipley Mch. Tool Co., Cincinnati, O.  
Marine Metal & Supply Co., New York, N. Y.  
Woods & Co., Edgar M., Pittsburgh, Pa.  
National Mach. & Wrecking Co., Cleveland, Ohio.  
New River Co., Macdonald, W. Va.  
Ruesbaum & Co., V. M., Fort Wayne, Ind.  
Pflanmuller Engineering Co., Chicago, Ill.  
Power Equipment Co., New York, N. Y.  
Frontier Tool & Supply Co., New York, N. Y.  
Handle Machinery Co., Cincinnati, O.  
Read Co., Howard W., Philadelphia, Pa.  
Samuel, Frank, Philadelphia, Pa.  
Serfert's Sons, Inc., L. E., Philadelphia, Pa.  
Tampa Machinery Exchange, Tampa, Fla.  
Thaw & Williams, Cincinnati, O.  
Toomey, Frank, Inc., Philadelphia, Pa.  
Wilson Mach. Co., St. Louis, Mo.  
Win erer, Herman L., Philadelphia, Pa.

## Machine Tools.

Greaves, Klusman Tool Co., The, Cincinnati, O.

## Machinists. (Engineers.)

Universal Machine Co., Baltimore, Md.

## Magnesia Materials.

John-Manville Co., H. W., New York, N. Y.

## Magnetic Separators.

Ruchanan & Co., Inc. C. G., New York, N. Y.

## Mail Chutes.

Cutler Mail Chute Co., Rochester, N. Y.

## Mechanical Draft.

Buffalo Forge Co., Buffalo, N. Y.  
Sturtevant Co., B. F., Hyde Park, Boston, Mass.

## Metal Ceilings. [See Ceilings, Metal.]

## Metalline.

Metalline Co., Long Island City, N. Y.

## Metal. (For Tanks, Culverts, Roofing, etc.)

Whitaker-Glessner Co., Portsmouth Plant, Portsmouth, Ohio.

## Metal Culverts. [See Culverts.] (Corrugated Metal.)

## Metal Shingles. [See Shingles.] (Metal.)

## Metal Window Frames and Sash. [See Window Frames and Sash.] (Fireproof.)

## Metal Work. [See Sheet Metal Work.]

## Metal-Working Machinery. (Sheet.)

Bilco Co., E. W., Brooklyn, N. Y.

## Meters. (Water.)

Alberger Pump & Condenser Co., New York, N. Y.

## Meter Boxes, Couplings, Gauges. (Water.)

Clark Co., H. W., Mattoon, Ill.

## Micrometers, Calipers, etc.

Starrett Co., L. S., Athol, Mass.

## Milk Filters. (Liquor, Milk, etc.)

International Filter Co., Chicago, Ill.

## Mill Engineers and Architects.

O'Brian, W. C., Memphis, Tenn.

## Mill Machinery and Supplies.

Bailey-Lebby Co., Charleston, S. C.  
Cameron & Barkley Co., Charleston, S. C.  
Empire Mch. & Supply Corp., Norfolk, Va.  
Gainesville Iron Works, Gainesville, Va.  
Lombard Iron Works, Augusta, Ga.  
Lunkenheimer Co., The, Cincinnati, O.  
Mecklenburg Iron Works, Charlotte, N. C.  
Salem Foundry & Machine Wks., Salem, Va.  
Starr Co., B. F., Baltimore, Md.  
Wolf Co., Chambersburg, Pa.

## Mining Machinery. (Gold, Copper, Plate, etc.)

Bartlett & Snow Co., C. O., Cleveland, O.  
Jeffrey Mfg. Co., Columbus, O.  
McLennan-Stone Mach. Co., Hollidaysburg, Pa.  
Mecklenburg Iron Works, Charlotte, N. C.  
Raymond Bros. Impact Pulv. Co., Chicago, Ill.

## Mixers. (Concrete.)

Milwaukee Concrete Mixer Co., Milwaukee, Wis.

## Mixing Machinery.

Dunning, W. D., Syracuse, N. Y.

## Mortar Colors.

Obstanooga Paint Co., Chattanooga, Tenn.

## Motor Trucks. (Gasoline.)

White Co., The, Cleveland, O.

## Motor Trucks. (Second Hand.)

Mar-Del Mobile Co., Baltimore, Md.

## Music Wire.

American Steel & Wire Co., Chicago, Ill.

## Nails. (Cut.)

La Belle Iron Works, Steubenville, O.

## Nails and Spikes.

La Belle Iron Works, Steubenville, Ohio.  
Republic Iron & Steel Co., Youngstown, O.  
Youngstown Sheet & Tube Co., Youngstown, O.

## Nuts. [See Bolts, Nuts, Rivets, etc.]

## Oil. (Creosoted.)

Barrett Mfg. Co., Philadelphia, Pa.

## Oils. (Lubricating, Etc.)

Albany Lubricating Co., New York, N. Y.  
Galena Signal Oil Co., Franklin, Pa.  
Gulf Refining Co., Pittsburgh, Pa.  
Robinson & Son Co., Wm. G., Baltimore, Md.  
Texas Co., The, Houston, Tex.

## Oil Cans.

Wall Mfg. Supply Co., P., Allegheny, Pa.

## Oil Engines. [See Engines (Oil).]

## Oil Separators.

Stewart Heater Co., Buffalo, N. Y.

## Oil Well Machinery.

Keystone Steam Well Mach. Co., Beaver Falls, Pa.  
Williams Bros., Ithaca, N. Y.

## Ore Handling Machinery. [See Coal Handling Machinery.]

Ornamental Iron Works.  
Bolles Iron & Wire Wks., J. E., Detroit, Mich.  
Cheapeake Iron Works, Baltimore, Md.  
Dow Wire & Iron Works, Louisville, Ky.  
Ohio Elevator & Mach. Co., The, Columbus, O.  
Schrieber & Sons Co., The L., Cincinnati, O.  
Snead Architectural Iron Works, Louisville, Ky.  
The Van Dorn Iron Works Co., Cleveland, Ohio.

## Oxygen.

International Oxygen Co., New York, N. Y.

## Oxygen Generators.

International Oxygen Co., New York, N. Y.

## Oxy-Acetylene Welding and Cutting Outfit and Supplies.

International Oxygen Co., New York, N. Y.  
Milburn Co., Alex. N., Baltimore, Md.

## Packing. (Asbestos, Metallic, Rubber, Leather, etc.)

Goodyear Tire & Rubber Co., Akron, O.  
Graton & Knight Mfg. Co., Worcester, Mass.  
Jenkins Bros., New York, N. Y.  
John-Manville Co., H. W., New York, N. Y.  
Power Specialty Co., New York, N. Y.

## Paint. (Metal Surfaces.)

Dixon Crucible Co., Joseph, Jersey City, N. J.

## Paint. (Preservative.)

Reeves Co., The, New Orleans, La.

## Paint. (Roofing, Building, etc.)

Cameron & Barkley Co., Charleston, S. C.  
Chattanooga Paint Co., Chattanooga, Tenn.

## Paper. (Roofing, Building, Sheeting, etc.)

Barrett Mfg. Co., Philadelphia, Pa.  
Cameron & Barkley Co., Charleston, S. C.

## Partitions. (Wooden Rolling.)

Van Hurlingen, J. M., Atlanta, Ga.

## Patent Attorneys.

Brown, Eugene O., Washington, D. C.  
Chandise & Chandlee, Washington, D. C.  
Coleman, Watson E., Washington, D. C.  
Evans & Co., Victor J., Washington, D. C.  
Hodges, Vernon E., Washington, D. C.  
Jenner, Herbert, Washington, D. C.  
Lacey, R. S. & A. R., Washington, D. C.  
McLaudie, A. S., Chattanooga, Tenn.  
Mills, Mansell F., Washington, D. C.  
Moore, Edw. Bruce, Washington, D. C.  
Parker, C. L., Washington, D. C.  
Woodworth John R., Washington, D. C.

## Pavement Filler.

Barrett Mfg. Co., Philadelphia, Pa.

## Paving Blocks. (Creosoted.)

International Creosoting & Construction Co., Galveston, Tex.  
National Lumber & Creosoting Co., Texarkana, Ark.  
Republic Creosoting Co., Indianapolis, Ind.  
Southern Creosoting Co., Ltd., Slidell, La.  
Southern Paving Const. Co., Chattanooga, Tenn.  
Southern Wood Preserving Co., Atlanta, Ga.  
Wyckoff Pipe & Creosoting Co., Inc., The, New York, N. Y.

## Paving Blocks. (Granite.)

Southern Marble & Granite Co., The, Spartanburg, S. C.

## Paving Brick.

Carlisle Paving Brick Co., Portsmouth, O.  
Copeland-Ingles Shale Brick Co., Birm'gh'm, Ala.  
Dunn Wire-Cut-Lug Brick Co., Conneaut, Ohio  
Southern Clay Mfg. Co., Chattanooga, Tenn.  
Standard Brick Co., Macon, Ga.

## Paving Plants. (Asphalt.)

Barber Asphalt Paving Co., Philadelphia, Pa.  
Cummer & Son Co., F. D., Cleveland, Ohio  
Equitable Asphalt Maintenance Co., Kansas City, Mo.

## Perforated Metal.

Caldwell & Son, H. W., Chicago, Ill.  
Erdie Perforating Co., Rochester, N. Y.  
Hendricks Mfg. Co., The, Carbondale, Pa.  
Manhattan Perforated Metal Co., New York, N. Y.  
Mondt & Sons, Charles, Jersey City, N. J.

## Petroleum Refiners.

Gulf Refining Co., Pittsburgh, Pa.  
Standard Oil Co., Inc., Newark, N. J.  
Texas Co., The, Houston, Tex.

## Phosphate Machinery.

American Process Co., New York, N. Y.  
Bailey-Lebby Co., The, Charleston, S. C.  
Cameron & Barkley Co., Charleston, S. C.  
K-B Pulverizer Co., New York, N. Y.  
Link-Belt Co., Philadelphia, Pa.  
McLennan-Stone Mach. Co., Hollidaysburg, Pa.  
Raymond Impact Pulv. Co., Chicago, Ill.  
Valk & Murdoch Iron Works, Charleston, S. C.

## Pig Iron.

La Belle Iron Works, Steubenville, O.  
Republic Iron & Steel Co., Youngstown, O.  
Tennessee Coal, Iron & R. R. Co., Birm'gh'm, Ala.

## Pile Drivers.

Vulcan Iron Works, Chicago, Ill.

## Pile Driving and Wharf Building.

Murray & Co., Inc., W. D., Norfolk, Va.

## Piling. (Creosoted.)

American Creosote Works, New Orleans, La.  
Intern'l Creosoting & Const. Co., Galveston, Tex.  
Southern Creosoting Co., Ltd., Slidell, La.  
Southern Paving Const. Co., Chattanooga, Tenn.

## Pillow Blocks.

Golden's Foundry & Machine Co., Columbus, Ga.  
Medart Patent Pulley Co., St. Louis, Mo.

## Pipe.

Allegheny Steel Co., Pittsburgh, Pa.  
La Belle Iron Works, Steubenville, Ohio.  
National Tube Co., Pittsburgh, Pa.  
Youngstown Sheet & Tube Co., Youngstown, O.

## Pipe. (Cast Iron.)

American Cast Iron Pipe Co., Birmingham, Ala.  
American Pipe & Construction Co., Phila., Pa.  
Clow & Sons, James H., Chicago, Ill.  
Donaldson Iron Co., Kansas, Pa.  
Giamorgan Pipe & Foundry Co., Lynchburg, Va.  
Lynchburg Foundry Co., Lynchburg, Va.  
Massillon Iron & Steel Co., Massillon, O.  
U. S. Cast Iron Pipe & Fdry. Co., Burlington, N. J.  
Wood & Co., H. D., Philadelphia, Pa.

## Pipe. (Coil.)

Frick Co., The, Waynesboro, Pa.  
National Pipe Bending Co., New Haven, Conn.  
York Mfg. Co., York, Pa.

## Pipe. (Corrugated Culvert.) [See Culvert (Corrugated Metal).]

## Pipe. (Riveted.)

Kaiser Co., E., Williamsport, Pa.

## Pipe. (Second Hand.)

Eagle Pipe Supply Co., Inc., New York, N. Y.

## Pipe. (Spiral Riveted.)

American Spiral Pipe Works, Chicago, Ill.

## Pipe. (Spiral Steel.)

Standard Spiral Pipe Works, Chicago, Ill.

## Pipe. (Sewer, Vitrified.) [See Sewer Pipe, Vitrified.]

## Pipe. (Wood.)

Wyckoff & Son Co., A., Elmira, N. Y.

## Pipe. (Wrought Iron.)

Youngstown Sheet & Tube Co., Youngstown, O.

## Pipe Bends.

Pittsburgh Valve, Fdry. & Const. Co., Pittsburgh, Pa.

## Pipe Covering. (Steam.)

Cheapeake Roofing & Pipe Covering Co., Inc., Baltimore, Md.  
Southern Asbestos Mfg. Co., Inc., Richmond, Va.  
Wyckoff & Son Co., A., Elmira, N. Y.

## Pipe Cutting and Threading Machinery.

Saunders' Sons, D., Yonkers, N. Y.

## Pipe Fittings.

American Cast Iron Pipe Co., Birmingham, Ala.  
Lunkenheimer Co., The, Cincinnati, O.  
National Tube Co., Pittsburgh, Pa.  
Pittsburgh Valve, Fdry. and Const. Co., Pittsburgh, Pa.  
York Mfg. Co., York, Pa.

## Pipe Unions and Joints.

Dart Mfg. Co., E. M., Providence, R. I.

## Pipe Wrenches and Cutters.

Saunders' Sons, D., Yonkers, N. Y.

## Piping System. (Designed and Installed.)

Pittsburgh Valve, Foundry & Construction Co., Pittsburgh, Pa.

## Pitch.

Barrett Mfg. Co., Philadelphia, Pa.

## Plaster Machinery.

Bartlett & Snow Co., C. O., Cleveland, O.

## Plates.

Allegheny Steel Co., Pittsburgh, Pa.  
Cincinnati Iron & Steel Co., Cincinnati, O.  
Wood Iron & Steel Co., Alan, Philadelphia, Pa.

## Pneumatic Tools. [See Tools--Pneumatic.]

## Poles. (Creosoted.)

American Creosote Works, New Orleans, La.  
Intern'l Creosoting & Const. Co., Galveston, Tex.  
National Lumber & Creos. Co., Texarkana, Ark.  
Southern Creosoting Co., Ltd., Slidell, La.  
Southern Paving Const. Co., Chattanooga, Tenn.  
Southern Wood Preserving Co., Atlanta, Ga.



**Pulleys. (Wood Split.)**

Caldwell & Son Co., H. W., Chicago, Ill.  
Medart Patent Pulley Co., St. Louis, Mo.  
Reeves Pulley Co., Columbus, Ind.  
Salem Foundry & Machine Wks., Salem, Va.

**Pulleys, Shafting and Hangers.**

Caldwell & Son Co., H. W., Chicago, Ill.  
Crescon-Morris Co., Philadelphia, Pa.  
Erie Clutch & Pulley Co., Erie, Pa.  
Golden's Foundry & Mach. Co., Columbus, Ga.  
Jeffrey Mfg. Co., Columbus, O.  
Jones & Langhin Steel Co., Pittsburgh, Pa.  
Link-Belt Co., Philadelphia, Pa.  
Medart Patent Pulley Co., St. Louis, Mo.  
Reeves Pulley Co., Columbus, Ind.  
Wood's Sons Co., T. H., Chambersburg, Pa.

**Pulverizers.**

Austin Mfg. Co., Chicago, Ill.  
Graendler Pat. Crusher & Pulv. Co., St. Louis, Mo.  
Jeffrey Mfg. Co., Columbus, O.  
K-B Pulverizer Co., Inc., New York, N. Y.  
McLanahan-Stone Mach. Co., Homestead, Pa.  
Raymond Bros., Impact Pulv. Co., Chicago, Ill.  
Stedman's Foundry & Machine Wks., Aurora, Ind.  
Western Wheel Scraper Co., Aurora, Ill.

**Pumping Machinery.**

Affiliated Manufacturers Co., Milwaukee, Wis.  
Alberger Pump & Condenser Co., New York, N. Y.  
Cameron Steam Pump Wks., A. S., New York, N. Y.  
Cook, A. D., Lawrenceburg, Ind.  
Deane Steam Pump Plant, Holyoke, Mass.  
Erie Pump & Equipment Co., Erie, Pa.  
Emerson Pump & Valve Co., Alexandria, Va.  
Holland Machine Co., New York, N. Y.  
Keystone Pump & Well Engine Co., Beaver Falls, Pa.  
Moffatt Machinery Mfg. Co., Charlotte, N. C.  
Morris Machine Works, Baldwinville, N. Y.  
Myers & Bros., F. E., Ashland, O.  
Platt Iron Works Co., Dayton, Ohio.  
Wood & Co., R. D., Philadelphia, Pa.  
Worthington, Henry R., Harrison, N. J.

**Pumps. (Air.)**

Blakelee Mfg. Co., Du Quoin, Ill.

**Pumps. (Air Lift.)**

Sullivan Mchry. Co., Chicago, Ill.

**Pumps. (Roller Feed.)**

Alberger Pump & Condenser Co., New York, N. Y.  
Blakelee Mfg. Co., Du Quoin, Ill.  
Cameron Steam Pump Wks., A. S., New York, N. Y.  
Jeansville Iron Works Plant, Hazleton, Pa.  
Moffatt Machinery Mfg. Co., Charlotte, N. C.  
Murray Iron Works Co., Burlington, Ia.  
Myers & Bros., F. E., Ashland, O.

**Pumps. (Centrifugal.)**

Alberger Pump & Condenser Co., New York, N. Y.  
Buffalo Steam Pump Co., Buffalo, N. Y.  
Cameron Steam Pump Wks., A. S., New York, N. Y.  
Erie Pump & Equipment Co., Erie, Pa.  
Holland Machine Co., New York, N. Y.  
Jeansville Iron Works Plant, Hazleton, Pa.  
Morris Machine Works, Baldwinville, N. Y.  
Pacific Flush Tank Co., New York, N. Y.  
Platt Iron Works Co., Dayton, Ohio.  
Wood & Co., R. D., Philadelphia, Pa.  
Worthington, Henry R., Harrison, N. J.

**Pumps. (Deep Well.)**

Cameron Steam Pump Wks., A. S., New York, N. Y.  
Cook, A. D., Lawrenceburg, Ind.  
Holland Machine Co., New York, N. Y.  
Keystone Pump & Well Engine Co., Beaver Falls, Pa.  
Layne & Bowler Co., Houston, Tex.

**Pumps. (Dredging.)**

Buffalo Steam Pump Works, Buffalo, N. Y.  
Erie Pump & Equipment Co., Erie, Pa.  
Holland Mch. Co., New York, N. Y.  
Morris Machine Works, Baldwinville, N. Y.  
Wood & Co., R. D., Phila., Pa.

**Pumps. (Hydraulic.)**

Buffalo Steam Pump Co., Buffalo, N. Y.  
Cameron Steam Pump Wks., A. S., New York, N. Y.  
Cardwell Machine Co., Richmond, Va.  
Erie Pump & Equipment Co., Erie, Pa.  
French Oil Mill Mchry. Co., The Piqua, O.  
Holland Mch. Co., New York, N. Y.

**Pumps. (Steam.)**

Alberger Pump & Condenser Co., New York, N. Y.  
Blake & Knowles Steam Pump Works, East Cambridge, Mass.  
Blakelee Mfg. Co., Du Quoin, Ill.  
Buffalo Steam Pump Co., Buffalo, N. Y.  
Cameron Steam Pump Wks., A. S., New York, N. Y.  
Cameron & Barkley Co., Charleston, S. C.  
Clayton Air Compressor Plant, Cambridge, Mass.  
Cook, A. D., Lawrenceburg, Ind.  
Deane Steam Pump Plant, Holyoke, Mass.  
Emerson Pump & Valve Co., Alexandria, Va.  
Fairbanks & Co., Atlanta, Ga.  
Keystone Pump & Well Engine Co., Beaver Falls, Pa.  
Murray Iron Works Co., Burlington, Ia.  
Snow Steam Pump Plant, The New York, N. Y.  
Worthington, Henry R., Harrison, N. J.

**Pumps. (Trench.)**

Affiliated Manufacturers Co., Milwaukee, Wis.  
C. H. & E. Mfg. Co., Inc., Milwaukee, Wis.

**Pumps. (Corbine Driven.)**

Sturtevant Co., B. F., Hyde Park, Boston, Mass.

**Pumps. (Vacuum.)**

Cameron Steam Pump Wks., A. S., New York, N. Y.

**Pumps. (Water-works.)**

Holland Mch. Co., New York, N. Y.  
Platt Iron Works Co., Dayton, Ohio.

**Pump Leathers.**

Graton & Knight Mfg. Co., Worcester, Mass.

**Punching and Shearing Machinery.**

Bliss Co., E. W., Brooklyn, N. Y.

**Railroads. [See Industrial, Agricultural and Commercial Opportunities.]****Railroad Equipment and Supplies. (New and Second-hand.)**

American Frog & Switch Co., Hamilton, O.  
Bailey-Lebby Co., The, Charleston, S. C.  
Birmingham Rail & Loco. Co., Birmingham, Ala.  
Cincinnati Frog & Switch Co., Cincinnati, O.  
Curd, Geo. B., Cincinnati, O.  
Fairbanks-Morse & Co., Atlanta, Ga.  
Foster Co., L. B., Pittsburgh, Pa.  
Georgia Car & Locomotive Co., Atlanta, Ga.  
Hirsch Rolling Mill Co., St. Louis, Mo.  
Hoffman & Co., Inc., R. O., Baltimore, Md.  
Hyde, Chas., Pittsburgh, Pa.  
Kilby Frog & Switch Co., Birmingham, Ala.  
National Steel Rail Co., St. Louis, Mo.  
Read Co., Howard W., Philadelphia, Pa.  
Robinson & Orr, Pittsburgh, Pa.  
Sherwood, E. O., New York, N. Y.  
Southern Iron & Equipment Co., Atlanta, Ga.  
Steel Rail Supply Co., The, New York, N. Y.  
Thaw & Williams, Cincinnati, O.  
United States Rail Co., Cumberland, Md.  
Weir Frog Co., Cincinnati, O.  
West Virginia Rail Co., Huntington, W. Va.  
Wilson & Co., E. H., Philadelphia, Pa.  
Wilson Mach. Co., St. Louis, Mo.  
Zelicker Supply Co., Walter A., St. Louis, Mo.

**Railroad Frogs & Switches.**

American Frog & Switch Co., Hamilton, O.  
Cincinnati Frog & Switch Co., Cincinnati, O.  
Conley Frog & Switch Co., Memphis, Tenn.  
Kilby Frog & Switch Co., Birmingham, Ala.  
Robinson & Orr, Pittsburgh, Pa.  
Sweet's Steel Co., Williamsport, Pa.  
Weir Frog Co., Cincinnati, O.

**Rails. (Steel.)**

Carnegie Steel Co., Pittsburgh, Pa.  
Foster Co., L. B., Pittsburgh, Pa.  
Frank, J. E., Atlanta, Ga.  
Gulf States Steel Co., Birmingham, Ala.  
Hirsch Rolling Mill Co., St. Louis, Mo.  
Hoffman & Co., Inc., R. O., Baltimore, Md.  
Hyde, Chas., Pittsburgh, Pa.  
Lackawanna Steel Co., Lackawanna, N. Y.  
Lewis & Co., Henry, Philadelphia, Pa.  
National Steel Rail Co., St. Louis, Mo.  
Republic Iron & Steel Co., Youngstown, O.  
Robinson & Orr, Pittsburgh, Pa.  
Sherwood, E. O., New York, N. Y.  
Southern Iron & Equipment Co., Atlanta, Ga.  
Steel Rail Supply Co., The, New York, N. Y.  
Sweet's Steel Co., Williamsport, Pa.  
Tennessee Coal, Iron & R. R. Co., B'gh'm, Ala.  
United States Rail Co., Cumberland, Md.  
West Virginia Rail Co., Huntington, W. Va.  
Wilson & Co., E. H., Philadelphia, Pa.

**Rail Braces, Crossings, etc. [See R. R. Frogs and Switches.]****Railings and Grilles. (Brass.)**

Newman Mfg. Co., Cincinnati, O.

**Railways. (Industrial.)**

Chase Fdry. & Mfg. Co., Columbus, O.  
Cincinnati Frog & Switch Co., Cincinnati, O.  
Hunt Co., Inc., O. W., West New Brighton, N. Y.  
Link-Belt Co., Philadelphia, Pa.

**Rams. (Hydraulic.) [See Hydraulic Ram.]****Reamers.**

Morse Twist Drill & Mch. Co., New Bedford, Mass.

**Reeds.**

American Supply Co., Providence, R. I.

**Refrigerating Machinery and Apparatus.**

Huetteman & Cramer Co., The, Detroit, Mich.  
Portsmouth Engine Co., Portsmouth, O.  
Remington Machine Co., Wilmington, Del.  
Viller Mfg. Co., Milwaukee, Wis.  
Vogt Machine Co., Henry, Louisville, Ky.  
York Mfg. Co., York, Pa.

**Reinforcing Bars. [See Concrete Reinforcing Bars.]**

River and Harbor Improvements. (Dredges, Docks, Wharves, etc.)  
Globe Dredging Co., Savannah, Ga.

**Road Expansion Joints.**

Philip Carey Co., The, Cincinnati, Ohio.

**Road and Street Machinery.**

Austin-Western Road Mchry. Co., The, Chicago, Ill.  
Buffalo Steam Roller Co., Buffalo, N. Y.  
Equitable Asphalt Maintenance Co., Kansas City, Mo.  
Erie Machine Works, Erie, Pa.  
Gallon Iron Works & Mfg. Co., The, Gallon, Ohio.  
Holt Manufacturing Co., Inc., The, Peoria, Ill.  
Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.  
Russell Grader Mfg. Co., Minneapolis, Minn.  
The Automatic Shovel Co., Lorain, Ohio.  
Universal Road Mchry. Co., Kingston, N. Y.  
Western Wheel Scraper Co., Aurora, Ill.

**Road and Street Materials.**

Barber Asphalt Paving Co., Philadelphia, Pa.  
Barrett Mfg. Co., Phila., Pa.  
Bosmac Road Corp. of America, Cleveland, Ohio.  
Smet-Solway Co., Solway, N. Y.  
Standard Oil Co., Inc., Newark, N. J.  
Texas Co., The, Houston, Tex.  
U. S. Asphalt Refining Co., New York, N. Y.

**Road Binders**

Barber Asphalt Paving Co., Philadelphia, Pa.  
Barrett Mfg. Co., Phila., Pa.  
Smet-Solway Co., Solway, N. Y.  
Standard Oil Co., Newark, N. J.  
U. S. Asphalt Refining Co., New York, N. Y.

**Road Rollers. (Steam.)**

Austin-Western Road Mchry. Co., The, Chicago, Ill.  
Barber Asphalt Paving Co., Philadelphia, Pa.  
Buffalo Steam Roller Co., Buffalo, N. Y.  
Erie Machine Works, Erie, Pa.  
Kelly Springfield Road Roller Co., Springfield, O.  
Universal Road Mchry. Co., Kingston, N. Y.

**Road Oil.**

Gulf Refining Co., Pittsburgh, Pa.  
Standard Oil Co., Inc., Newark, N. J.  
Texas Co., The, Houston, Tex.  
U. S. Asphalt Refining Co., New York, N. Y.

**Road Preservatives.**

Barrett Mfg. Co., Philadelphia, Pa.  
Gulf Refining Co., Pittsburgh, Pa.  
Smet-Solway Co., Solway, N. Y.  
Standard Oil Co., Inc., Newark, N. J.  
Texas Co., The, Houston, Tex.  
U. S. Asphalt Refining Co., New York, N. Y.

**Road Scarifiers.**

Buffalo Steam Roller Co., Buffalo, N. Y.  
Gallon Iron Works & Mfg. Co., The, Gallon, Ohio

**Rock Crushers. [See Crushers, Rock.]**

Rollers. (For Moving Houses, Machinery, Etc.)  
Ogden, O. O., Baton Rouge, La.

**Roller Covering Supplies.**

American Supply Co., Providence, R. I.

**Roofing. (Cement Tile)**

American Cement Tile Mfg. Co., Pittsburgh, Pa.

**Roofing. (Ready Prepared: Felt Tar, Asbestos, Asphalt.)**

American Sheet & Tin Plate Co., Pittsburgh, Pa.  
Asbestos Protected Metal Co., Pittsburgh, Pa.  
Barrett Mfg. Co., Philadelphia, Pa.  
Cameron & Barkley Co., Charleston, S. C.  
Chesapeake Roofing & Pipe Covering Co., Inc., Baltimore, Md.  
John-Manville Co., H. W., New York, N. Y.

**Roofing. (Metal Shingles.) [See Shingles, Metal.]**

Bristol Metal Mfg. Co., Bristol, Va.-Tenn.  
Cortright Metal Roofing Co., Chesapeake, Pa.  
Edwards Mfg. Co., The, Cincinnati, O.  
Hyndman Roofing Co., Cincinnati, O.  
Southern Sheet & Tin Plate Co., Ashland, Ky.

**Roofing. (Slate.)**

East Bangor Consol. Slate Co., East Bangor, Pa.  
Genuine Bangor Slate Co., Easton, Pa.  
Johnson, E. J., New York, N. Y.  
Standard Slate Corp., Easton, Pa.

**Roofing and Siding. (Metal.)**

American Sheet & Tin Plate Co., Pittsburgh, Pa.  
Asbestos Protected Metal Co., Pittsburgh, Pa.  
Cameron & Barkley Co., Charleston, S. C.  
Cortright Metal Roofing Co., Philadelphia, Pa.  
Edwards Mfg. Co., The, Cincinnati, O.  
Hyndman Roofing Co., Cincinnati, O.  
Southern Sheet & Tin Plate Co., Ashland, Ky.  
Steel Products Co., The, Savannah, Ga.  
Tennessee Metal Culvert Co., Nashville, Tenn.  
Whitaker-Glessner Co., Portsmouth Works, Portsmouth, Ohio.  
Youngstown Sheet & Tube Co., Youngstown, O.

**Rope. (Manila, Sisal, Hemp, etc.)**

Broderick & Bascom Rope Co., St. Louis, Mo.  
Columbian Rope Co., Auburn, N. Y.  
Waterbury Co., New York, N. Y.  
Wood's Sons Co., T. B., Chambersburg, Pa.

**Rope. (Wire.) [See Wire Rope.]**

American Steel & Wire Co., Chicago, Ill.  
Broderick & Bascom Rope Co., St. Louis, Mo.  
Hunt Co., Inc., C. W., West New Brighton, N. Y.  
Jesse's Sons Co., John A., Trenton, N. J.  
Waterbury Co., New York, N. Y.  
Youngstown Sheet & Tube Co., Youngstown, O.

**Rope Drives.**

Caldwell & Son, H. W., Chicago, Ill.  
Crescon-Morris Co., Philadelphia, Pa.  
Jones & Langhin Steel Co., Pittsburgh, Pa.  
Medart Patent Pulley Co., St. Louis, Mo.  
Waterbury Co., New York, N. Y.  
Wood's Sons Co., T. B., Chambersburg, Pa.

**Rubber Goods.**

Eureka Fire Hose Mfg. Co., New York, N. Y.  
Goodyear Tire & Rubber Co., Akron, O.

**Rules. (Steel.)**

Larkin Rule Co., Saginaw, Mich.  
Starrett Co., L. S., Athol, Mass.

**Saddles. (For Cotton Mchry.) [Oilless.]**

Graphite Lubricating Co., Bound Brook, N. J.

**Sales and Vaults.**

York Safe & Lock Co., York, Pa.

**Sand.**

Arundel Sand & Gravel Co., Baltimore, Md.  
Kirkpatrick Sand & Cement Co., Birmingham, Ala.

**Sand. (Foundry.)**

Newport Sand Bank Co., Inc., Newport, Ky.

**Sand Dryers.**

American Process Co., New York, N. Y.  
Ripley Foundry & Mach. Co., The, Ripley, Ohio.

**Sap Stain Preventive.**

Church & Dwight Co., New York, N. Y.

**Sash Chain.**

Niagara Falls Metal Stamping Works, Niagara Falls, N. Y.

**Saws.**

Gerlach Co., Peter, Cleveland, O.  
Huther Bros. Saw Mfg. Co., Inc., Rochester, N. Y.

**Saws. (Hack.)**

Starrett Co., L. S., Athol, Mass.

**Saw Rigs. (Portable)**

C. H. & E. Mfg. Co., Inc., Milwaukee, Wis.

**Sawmill Dogs.**

Soule Steam Feed Works, Meridian, Miss.

**Sawmills.**

Gainesville Iron Works, Gainesville, Ga.

**Sawmill Machinery.**

Bailey-Lebby Co., Charleston, S. C.  
Cameron & Barkley Co., Charleston, S. C.  
McKinniburg Iron Works, Charlotte, N. C.  
Schofield Iron Works, Macon, Ga.  
Southern Engine & Boiler Wks., Jackson, Tenn.

**Saw Sharpeners.**

Carborundum Co., Niagara Falls, N. Y.  
Vitrified Wheel Co., Westfield, Mass.

**Saw Sharpeners and Files. (Cotton Gin.)**

Carver Cotton Gin Co., East Bridgewater, Mass.

**Scales.**

Standard Scale & Supply Co., Pittsburgh, Pa.

**Screens. (Fly, Window and Door.)**

New Jersey Wire Cloth Co., Trenton, N. J.

**Screens. (Mining, Stone, etc.)**

Erdie Perforating Co., Rochester, N. Y.  
Hendrick Mfg. Co., Carbondale, Pa.  
Jeffrey Mfg. Co., Columbus, O.  
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.  
Mant & Sons, Charles, Jersey City, N. J.  
New Jersey Wire Cloth Co., Trenton, N. J.

**Screenings. (For Concrete and Road Construction.)**

American Ballast Co., Knoxville, Tenn.

**Screws. (Machine.)**

Progressive Mfg. Co., Torrington, Conn.

**Screws. (Safety Set.)**

Allen Manufacturing Co., Inc., Hartford, Conn.

**Screw Machine Products.**

Progressive Mfg. Co., Torrington, Conn.

**Separators. (Dust.)**

Buffalo Forge Co., Buffalo, N. Y.  
Raymond Bros. Impact Pulv. Co., Chicago, Ill.

**Sewer Flushing Siphons.**

Pacific Flush Tank Co., New York, N. Y.

**Sewer Joint Compounds.**

Pacific Flush Tank Co., New York, N. Y.

**Sewer Pipe. (Vitrified.)**

Bannon Pipe Co., E. Louisville, Ky.  
Blackmer & Post Pipe Co., St. Louis, Mo.  
Cannelton Sewer Pipe Co., Cannelton, Ind.  
Owensboro Sewer Pipe Co., Owensboro, Ky.  
Pomona Terra-Ottis Co., Pomona, N. O.  
Southern Sewer Pipe Co., Birmingham, Ala.  
Stevens Sons Co., H., Macon, Ga.

**Sewer Pipe and Drains. (Monolithic Concrete)**

Requarth Co., C. W., Charlotte, N. C.

**Sewage Pumping and Disposal Apparatus.**

Pacific Flush Tank Co., New York, N. Y.

**Shafting. (Cold Rolled Steel.)**

American Steel & Wire Co., Chicago, Ill.  
Jones & Langhin Steel Co., Pittsburgh, Pa.  
Medart Patent Pulley Co., St. Louis, Mo.  
Pardee Works Co., Perth Amboy, N. J.  
Republic Iron & Steel Co., Youngstown, O.  
Union Drawn Steel Co., Beaver Falls, Pa.

**Shafting. [See Pulleys, Shafting and Hangers.]****Sharpening Stones.**

Carborundum Co., Niagara Falls, N. Y.  
Vitrified Wheel Co., Westfield, Mass.

**Shearing Machinery.**

Erie Foundry Co., Erie, Pa.

**Sheet, Brass and Copper.**

McKenna Bros. Brass Co., Pittsburgh, Pa.

**Sheet Metal Work.**

Atlas Metal Works, Dallas, Tex.  
Dixie Culvert & Metal Co., Atlanta, Ga.  
Fouts Co., C. C., Middletown, O.  
Lone Star Culvert Co., Houston, Tex.  
Niagara Falls Metal Stamping Works, Niagara Falls, N. Y.  
Salisbury Metal Culvert Co., Salisbury, N. O.  
South Atlantic Blow Pipe & Sheet Metal Co., Savannah, Ga.  
Steel Products Co., The, Savannah, Ga.  
Tennessee Metal Culvert Co., Nashville, Tenn.  
Virginia Metal & Culvert Co., Roanoke, Va.

**Sheet Metal Working Machinery.**

Riggs Co., E. W., Brooklyn, N. Y.  
Eagle Mfg. Co., Cincinnati, Ohio.

**Sheet Steel and Iron.**

American Sheet & Tin Plate Co., Pittsburgh, Pa.  
Cincinnati Iron & Steel Co., Cincinnati, O.  
La Belle Iron Works, Steubenville, O.  
Republic Iron & Steel Co., Youngstown, O.  
Southern Sheet & Tin Plate Co., Ashland, Ky.  
Tennessee Coal, Iron & R. R. Co., B'gh'm, Ala.  
Whitaker-Glessner Co., Portsmouth Works, Portsmouth, Ohio.  
Wood Iron & Steel Co., Alan, Philadelphia, Pa.  
Youngstown Sheet & Tube Co., Youngstown, O.

**Shelving. [(Steel) Vault, Store, Etc.]**

Van Hurlingen, J. M., Atlanta, Ga.

**Shingles. (Metal.)**

Bristol Metal Mfg. Co., Bristol, Va.-Tenn.  
Cortright Metal Roofing Co., Philadelphia, Pa.  
Edwards Mfg. Co., Cincinnati, O.  
Hyndman Roofing Co., Cincinnati, O.  
Southern Sheet & Tin Plate Co., Ashland, Ky.

**Shop Furniture. (Steel.)**

Merritt & Co., Camden, N. J.

**Shovels. (Special for Any Purpose.)**

Conneaut Shovel Co., The, Conneaut, Ohio.

**Shovels. (Steel, Brass, Aluminum, etc.)**

Conneaut Shovel Co., The, Conneaut, Ohio.

**Shutters. (Iron.)**

Bolles Iron & Wire Works, J. E., Detroit, Mich.  
Chesapeake Iron Works, Baltimore, Md.

**Shutters. (Steel Rolling.)**

Kinner Mfg. Co., Columbus, O.

**Shutters. (Tin Clad.)**

Victor Mfg. Co., Newburyport, Mass.

**Silos. (Metal.)**

**Steam Traps.**

Jenkins Bros., New York, N. Y.

**Steel.**

Carnegie Steel Co., Pittsburgh, Pa.  
 Dietrich Bros., Baltimore, Md.  
 Gulf States Steel Co., Birmingham, Ala.  
 Hoffman & Co., Inc., R. O., Baltimore, Md.  
 Jones & Laughlin Steel Co., Pittsburgh, Pa.  
 La Belle Iron Works, Steubenville, O.  
 Lackawanna Steel Co., Lackawanna, N. Y.  
 Pardee Works, C. Parth Amboy, N. J.  
 Republic Iron & Steel Co., Youngstown, O.  
 Tennessee Coal, Iron & R. R. Co., Birmingham, Ala.  
 Union Drawn Steel Co., Beaver Falls, Pa.  
 Union Nut Co., The, Cleveland, O.  
 Whitaker-Glessner Co., Portsmouth Works, Portsmouth, Ohio.  
 Wood Iron & Steel Co., Alan, Philadelphia, Pa.  
 Youngstown Sheet & Tube Co., The Youngstown, O.

**Steel (Tool).**

Scourie-Fuller Co., The, Cleveland, Ohio.  
 McKenna Bros., Brass Co., Pittsburgh, Pa.  
 Union Drawn Steel Co., Beaver Falls, Pa.

**Steel (Vanadium).**

Carnegie Steel Co., Pittsburgh, Pa.  
 Union Drawn Steel Co., Beaver Falls, Pa.

**Steel Buildings. (Designers, Builders.)**

Amer. Bridge Co., of New York, N. Y.  
 Belmont Iron Works, Philadelphia, Pa.  
 Case Crane & Engineering Co., Columbus, Ohio.  
 Champion Bridge Co., Wilmington, O.  
 Chesapeake Iron Works, Baltimore, Md.  
 Des Moines Bridge & Iron Co., Des Moines, Ia.  
 Fenix Iron Co., Philadelphia, Pa.  
 Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.  
 Richmond Structural Steel Co., Richmond, Va.  
 Schreiber & Sons Co., The, Cincinnati, O.  
 Sued Architectural Iron Works, Louisville, Ky.  
 Turner, C. A. P., Minneapolis, Minn.  
 Virginia Bridge & Iron Co., Roanoke, Va.

**Steel Castings.**

Orucible Steel Castings Co., Lansdowne, Pa.  
 Hoffman & Co., Inc., R. O., Baltimore, Md.  
 Riverside Steel Casting Co., Newark, N. J.

**Steel Plate Work.**

Casey-Hedges Co., Chattanooga, Tenn.  
 Chattanooga Boiler & Tank Co., Chattanooga, Tenn.  
 Conteeville Boiler Works, Conteeville, Pa.  
 Hoffman & Co., Inc., R. O., Baltimore, Md.  
 Memphis Steel Construction Co., Memphis, Tenn.  
 Phoenix Iron Co., Philadelphia, Pa.  
 Struthers-Wells Co., Warren, Pa.

**Steel Protector. (Concrete Carb. Steps, etc.)**

[See Carb Protector Steel.]

**Steel Sheet Piling.**

Carnegie Steel Co., Pittsburgh, Pa.  
 Franks, J. E., Atlanta, Ga.  
 Jones & Laughlin Steel Co., Pittsburgh, Pa.  
 Lackawanna Steel Co., Lackawanna, N. Y.

**Stencils.**

Baltimore Office Supply Co., Baltimore, Md.  
 Dorman Co., J. F. W., Baltimore, Md.

**Struttings. (Building.)**

Chesapeake Iron Works, Baltimore, Md.

**Stock Certificates, Bonds and Seals.**

Baltimore Office Supply Co., Baltimore, Md.  
 Dorman Co., J. F. W., Baltimore, Md.

**Stokers. (Hand.)**

Huber Grate Bar &amp; Stoking Co., Baltimore, Md.

**Stokers. (Mechanical.)**

Babcock & Wilcox Co., New York, N. Y.  
 Westinghouse Machine Co., Pittsburgh, Pa.

**Stone. (Building.)**

Atlantic Stone Co., Atlanta, Ga.  
 Bedford Steam Stone Works, Bedford, Ind.  
 Kripatrik Sand & Cement Co., Birmingham, Ala.  
 Stone. (Crushed.) [See Crushed Stone.]

**Stone and Gravel Plants.**

Weller Mfg. Co., Chicago, Ill.

**Storage Batteries.**

Exc. Storage Battery Co., The, Philadelphia, Pa.  
 Westinghouse Machine Co., Pittsburgh, Pa.

**Strapping Leather.**

Graton &amp; Knight Mfg. Co., Worcester, Mass.

**Structural Steel and Iron.**

Allegheny Steel Co., Pittsburgh, Pa.  
 Amer. Bridge Co. of New York, N. Y.  
 Belmont Iron Works, Philadelphia, Pa.  
 Scourie-Fuller Co., The, Cleveland, Ohio  
 Carnegie Steel Co., Pittsburgh, Pa.  
 Case Crane & Engineering Co., Columbus, Ohio.  
 Champion Bridge Co., Wilmington, O.  
 Chesapeake Iron Works, Baltimore, Md.  
 Chicago Bridge & Iron Works, Chicago, Ill.  
 Cincinnati Iron & Steel Co., Cincinnati, O.  
 Des Moines Bridge & Iron Co., Des Moines, Ia.  
 Dietrich Bros., Baltimore, Md.  
 East St. Louis Bridge Co., East St. Louis, Ill.  
 Granger & Co., Inc., Louisville, Ky.  
 Hoffman & Co., Inc., R. O., Baltimore, Md.  
 Jones & Laughlin Steel Co., Pittsburgh, Pa.  
 Lackawanna Steel Co., Lackawanna, N. Y.  
 Memphis Steel Construction Co., Memphis, Tenn.  
 Phoenix Iron Co., Philadelphia, Pa.  
 Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.  
 Republic Iron & Steel Co., Youngstown, O.  
 Richmond Structural Steel Co., Richmond, Va.  
 Scales & Sons Co., Wm. B., Pittsburgh, Pa.  
 Schreiber & Sons Co., The, Cincinnati, O.  
 Sued Architectural Iron Works, Louisville, Ky.  
 Southern Sheet & Tin Plate Co., Ashland, Ky.  
 Steel Products Co., The, Savannah, Ga.  
 Tennessee Coal, Iron & R. R. Co., Birmingham, Ala.  
 The Van Dorn Iron Works Co., Cleveland, Ohio.  
 Vincennes Bridge Co., Vincennes, Ind.  
 Virginia Bridge & Iron Co., Roanoke, Va.

**Stump Pullers.**

Zimmerman Steel Co., Lone Tree, Iowa.

**Sulphur.**

Union Sulphur Co., New York, N. Y.

**Super-Heaters. (Steam.)**

Babcock & Wilcox Co., New York, N. Y.  
 Power Specialty Co., New York, N. Y.

**Surveying Instruments.**

Weber &amp; Co., F., Philadelphia, Pa.

**Swinging Engines.**

Duke Engine Co., Grand Haven, Mich.

**Switchboards, Switches, etc.**

General Electric Co., Schenectady, N. Y.

**Switches. [See Railroad Frogs and Switches.]****Switchstands.**

Weir Frog Co., Cincinnati, O.

**Tackle Blocks. (For Wire or Manila Rope.)**

Broderick &amp; Bascom Rope Co., St. Louis, Mo.

**Talc and Soapstone Powders.**

Georgia Talc Co., Ashville, N. C.

**Tanks. (Iron and Steel.)**

American Bridge Co., New York, N. Y.  
 American Water Softener Co., Philadelphia, Pa.  
 Caldwell Co., Inc., W. E., Louisville, Ky.  
 Casey-Hedges Co., Chattanooga, Tenn.  
 Chattanooga Boiler & Tank Co., Chattanooga, Tenn.  
 Chicago Bridge & Iron Works, Chicago, Ill.  
 Coateville Boiler Works, Coateville, Pa.  
 Cole Mfg. Co., R. D., Newnan, Ga.  
 Des Moines Bridge & Iron Co., Des Moines, Ia.  
 Dixie Culvert & Metal Co., Atlanta, Ga.  
 Hartley Boiler Works, Montgomery, Ala.  
 Hendricks Mfg. Co., Carbondale, Pa.  
 Keeler Co., E., Williamsport, Pa.  
 Lombard Iron Works, Augusta, Ga.  
 Lookout Boiler & Mfg. Co., Chattanooga, Tenn.  
 Memphis Steel Construction Co., Memphis, Tenn.  
 Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.  
 Schofield Iron Works, Macon, Ga.  
 Southern Boiler & Tank Works, Memphis, Tenn.  
 Struthers-Wells Co., Warren, Pa.  
 Tennessee Metal Culvert Co., Nashville, Tenn.  
 Iwin City Boiler Works, Bristol, Va.-Tenn.  
 Virginia Bridge & Iron Co., Roanoke, Va.  
 Walsh & Weidner Boiler Co., Chattanooga, Tenn.

**Tanks. (Wood.)**

Caldwell Co., Inc., W. E., Louisville, Ky.  
 Davis & Son, G. M., Palisade, Fla.

**Tapes. (Measuring.)**

Lufkin Rule Co., Saginaw, Mich.  
 Starrett Co., L. S., Athol, Mass.

**Telephones. (Supplies, Equipment.)**

Piedmont Electric Co., Asheville, N. C.  
 Western Electric Co., New York, N. Y.

**Telephone Service.**

American Telephone &amp; Telegraph Co.

**Terra-Cotta. (Ornamental.)**

Atlanta Terra-Cotta Co., Atlanta, Ga.  
 Pomona Terra-Cotta Co., Pomona, N. C.  
 Southern Building Material Co., Norfolk, Va.  
 Stevens' Sons Co., H., Macon, Ga.

**Threshers.**

Cardwell Machine Co., Richmond, Va.

**Tiering Machines. (Portable.)**

Economy Engineering Co., Chicago, Ill.

**Tile (Drain)**

Oconee Brick &amp; Tile Co., Milledgeville, Ga.

**Tile (Interior)**

Amer. Enam. Brick &amp; Tile Co., New York, N. Y.

## Important Information For Advertisers in Manufacturers Record

Publication day—Every Thursday.

Advertising copy not requiring proof must reach us one week in advance of publication day.

When proof is required, two weeks in advance.

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Four columns to page.

**TYPOGRAPHICAL ARRANGEMENT**

We desire to use, as far as possible, uniform display type and borders and avoid the use of black background cuts. The uniform border is two-point plain rule for all spaces less than a full page.

Copy for advertisements other than those to be used in special departments should be prepared for two-column measure for spaces less than a quarter page; for a quarter page or larger, in two or four columns.

**Tile. (Mantel and Promenade.)**

Hood Brick Co., B. Milfin, Atlanta, Ga.

**Tile (Structural)**

Oconee Brick &amp; Tile Co., Milledgeville, Ga.

**Timbers. (Creosoted.)**

American Creosote Works, New Orleans, La.  
 Republic Creosoting Co., Indianapolis, Ind.

**Tin and Terne Plates.**

American Sheet &amp; Tin Plate Co., Pittsburgh, Pa.

**Tobacco Machinery.**

Backeys Iron & Brass Works, Dayton, O.  
 Cardwell Machine Co., Richmond, Va.  
 Grote Mfg. Co., F., Evansville, Ind.

**Tools. (Machinists.)**

Holland Mfg. Co., Erie, Pa.  
 Morse Twist Drill & Mch. Co., New Bedford, Mass.

**Tools. (Mechanical.)**

Starrett Co., L. S., Athol, Mass.

**Tools. Pneumatic.**

Chicago Pneumatic Tool Co., Chicago, Ill.

**Torches.**

Wall Mfg. Supply Co., F., Allegheny, Pa.

**Towers. (Electric Transmission.)**

American Bridge Co. of New York, N. Y.  
 Scales & Sons Co., Wm. B., Pittsburgh, Pa.

**Towers. (Steel and Wood.)**

Caldwell & Co., Inc., W. E., Louisville, Ky.  
 Chattanooga Boiler & Tank Co., Chattanooga, Tenn.  
 Chicago Bridge & Iron Works, Chicago, Ill.  
 Cole Mfg. Co., R. D., Newnan, Ga.  
 Des Moines Bridge & Iron Co., Des Moines, Ia.  
 Memphis Steel Const. Co., Memphis, Tenn.  
 Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

**Track Material. (Steam & Industrial Railroads.)**

Conley Frog & Switch Co., Memphis, Tenn.  
 Union Nut Co., Cleveland, O.

**Traction Engines.**

Fairbanks-Morse & Co., Atlanta, Ga.  
 Holt Mfg. Co., Inc., The, Peoria, Ill.

**Tramway. (Overhead.)**

Amburn Co. (Tramway Department), New York, N. Y.  
 Spidel, J. G., Reading, Pa.

**Tramways. (Portable.)**

Amburn Co. (Tramway Department), New York, N. Y.

**Tramway. (Wire Rope.)**

Amburn Co. (Tramway Department), New York, N. Y.  
 American Steel & Wire Co., Chicago, Ill.  
 Broderick & Bascom Rope Co., St. Louis, Mo.  
 Caldwell & Sons Co., H. W., Chicago, Ill.  
 Link-Belt Co., Philadelphia, Pa.  
 Watervury Co., New York, N. Y.

**Transformers.**

Triumph Electric Co., Cincinnati, O.

**Trench Excavator. [See Excavator (Trench).]****Trucks. (Dry Kilo.)**

Moore Dry Kilo Co., L., Jacksonville, Fla.

**Trucks. (Platform, Freight, Mill, Factory, etc.)**

Chase Fdry. &amp; Mfg. Co., Columbus, O.

**Trucks. (Storage Battery Auto.)**

Westinghouse Machine Co., Pittsburgh, Pa.

**Trust Companies. [See Bankers and Brokers.]****Tubes. (Boiler.)**

Allegheny Steel Co., Pittsburgh, Pa.  
 Cincinnati Iron & Steel Co., Cincinnati, O.

**Tube Well Strainers.**

Cook, A. D., Lawrenceburg, Ind.

**Tubing.**

La Belle Iron Works, Steubenville, O.  
 Youngstown Sheet & Tube Co., Youngstown, O.

**Turbines. (Hydraulic.)**

Allis-Chalmers Mfg. Co., Milwaukee, Wis.  
 Davis Foundry & Machine Wks., Rome, Ga.  
 Leffel & Co., James, Springfield, O.  
 Salem Foundry & Machine Wks., Salem, Va.  
 Smith Co., S. Morgan, York, Pa.

**Turbines. (Steam.)**

Allis-Chalmers Mfg. Co., Milwaukee, Wis.  
 General Electric Co., Schenectady, N. Y.  
 Starvevant Co., B. F., Hyde Park, Boston, Mass.  
 Terry Steam Turbine Co., Hartford, Conn.  
 Western Electric Co., New York, N. Y.  
 Westinghouse Machine Co., Pittsburgh, Pa.

**Wagon Unloaders.**

Bonney Supply Co., Rochester, N. Y.

**Wall Coping.**

Southern Sewer Pipe Co., Birmingham, Ala.

**Wall Plugs. (Galvanized.)**

Niagara Falls Metal Stamping Works, Niagara Falls, N. Y.  
 The Van Dorn Iron Works Co., Cleveland, Ohio.

**Wall Ties.**

Niagara Falls Metal Stamping Works, Niagara Falls, N. Y.

**Washers. (Graphite and Bronze, Oilless.)**

Graphite Lubricating Co., Bound Brook, N. J.

**Washers. (Ore and Phosphate.)**

Bailey-Lobby Co., Charleston, S. C.  
 Cameron & Barkley Co., Charleston, S. C.  
 McLanahan-Stone Mach. Co., Hollidaysburg, Pa.

**Washers and Rivets. [See Bolts, Nuts, Rivets, Studs and Washers.]****Water Filters. [See Filters, Water, etc.]****Waterproofing. (For Brick, Concrete, Granite, etc.)**

Aquabar Co., The, Philadelphia, Pa.  
 Barrett & Co., Philadelphia, Pa.  
 Johns-Manville Co., H. W., New York, N. Y.

**Water-Softening Apparatus. (Purifying.)**

American Water Softener Co., Philadelphia, Pa.  
 International Filter Co., Chicago, Ill.  
 N. Y. Cont. Jewell Filter Co., New York, N. Y.  
 Tucker & Laxton, Charlotte, N. C.

**Water-Wheels. [See Turbines. (Hydraulic).]****Water-Works Supplies and Appliances.**

Allen-Scales Engineering Co., Inc., Nashville, Tenn.  
 American Cast Iron Pipe Co., Birmingham, Ala.  
 American Pipe & Constr. Co., Philadelphia, Pa.  
 Borden Copper & Brass Wks. Co., Cincinnati, O.  
 Clark Co., H. W., Mattoon, Ill.  
 Clow & Sons, James B., Chicago, Ill.  
 Coldwell-Wilcox Co., Newburgh, N. Y.  
 Columbian Iron Works, Chattanooga, Tenn.  
 Donaldson Iron Co., Kansas, Pa.  
 Glamorgan Pipe & Foundry Co., Lynchburg, Va.  
 Keystone Pump & Well Engine Co., Beaver Falls, Pa.  
 Layne & Bowler Co., Houston, Tex.  
 Massillon Iron & Steel Co., Massillon, Ohio.  
 Pomona Terra-Cotta Co., Pomona, N. C.  
 Salem Fdry. & Machine Works, Salem, Va.  
 Standard Spiral Pipe Works, Chicago, Ill.  
 Stevens' Sons Co., H., Macon, Ga.  
 U. S. Cast Iron Pipe & Fdry. Co., Burlington, N. J.  
 Wood & Co., R. D., Philadelphia, Pa.

**Welding. (Oxy-Acetylene Process.)**

Frest-O-Lite Co., Inc., The, Indianapolis, Ind.

**Welding Plants. (Oxy-Acetylene.)**

Milburn Co., Alex. N., Baltimore, Md.

**Welding Apparatus. (Oxy-Acetylene Process.)**

Frest-O-Lite Co., Inc., The, Indianapolis, Ind.

**Well Contractors. (Oil, Artesian, etc.)**

Cook, A. D., Lawrenceburg, Ind.  
 Hughes Specialty Well Drill Co., Charleston, S. C.  
 Stothoff Bros., Flemington, N. J.

**Well Tools and Supplies.**

Cook, A. D., Lawrenceburg, Ind.  
 Keystone Pump & Well Engine Co., Beaver Falls, Pa.  
 Williams Bros., Itasca, N. Y.

**Wheels and Axles.**

Electric Wheel Co., (Mfrs.), Quincy, Ill.  
 Oliver Mfg. Co., W. J., Knoxville, Tenn.

**Wheelbarrows and Carts.**

Sterling Wheelbarrow Co., Milwaukee, Wis.

**Window Frames and Sash. (Fireproof.)**

Detroit Steel Products Co., Detroit, Mich.  
 Edwards Mfg. Co., The, Cincinnati, O.  
 Wagner's Sons Co., J. F., Louisville, Ky.

**Window Guards. (Wire.) [See Wire Goods.]****Windmills.**

Caldwell Co., Inc., W. E., Louisville, Ky.

**Wire. (Barbed Wire, etc.)**

American Steel & Wire Co., Chicago, Ill.  
 Cyclone Fence Co., Waukegan, Ill.  
 Kramling's Sons Co., John A., Trenton, N. J.  
 Youngstown Sheet & Tube Co., Youngstown, O.

**Wire. (Galvanized and Annealed.)**

American Steel &amp; Wire Co., Chicago, Ill.

**Wire. (Galvanized Telephone.)**

American Steel &amp; Wire Co., Chicago, Ill.

**Wire. (Plain Steel, Hoop, etc.)**

Gulf States Steel Co., Birmingham, Ala.

**Wire Cloth. (Iron, Steel, Brass, etc.)**

Caldwell & Sons Co., The, H. W., Chicago, Ill.  
 Eureka Supply Co., Chattanooga, Tenn.  
 Meyers Mfg. Co., The, Fred J., Hamilton, O.  
 New Jersey Wire Cloth Co., Trenton, N. J.

**Wire Goods.**

Bolles Iron & Wire Wks., J. E., Detroit, Mich.  
 Dow Wire & Iron Works, Louisville, Ky.  
 Dufur & Co., Baltimore, Md.  
 Dufur, Jacob & Co., Baltimore, Md.  
 Meyers Mfg. Co., The, Fred J., Hamilton, O.  
 New Jersey Wire Cloth Co., Trenton, N. J.

**Wire Netting.**

American Steel &amp; Wire Co., Chicago, Ill.

**Wire Rope. [See Rope (Wire).]****Wire Rope Clips.**

American Steel & Wire Co., Chicago, Ill.  
 Broderick & Bascom Rope Co., St. Louis, Mo.

**Wood Distillation.**

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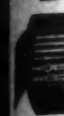
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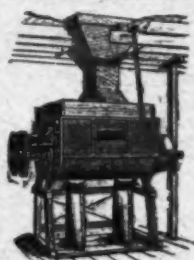
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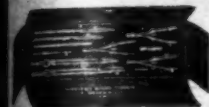
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## Eureka Linen Fire Hose



When fire breaks out in Houses, Institutions, etc., lives  
are imperilled and the question frequently arises at such  
a critical moment, as to whether the Hose will give  
effective service.

No such question arises where

### EUREKA LINEN FIRE HOSE

is used.

Why? Because it is as near perfect as human inge-  
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It has a longer record of continuous use than any other  
brand of Linen Hose.

It is woven in CIRCULAR form (in precisely the  
same way it assumes when being used) not FLAT, as  
in some others, and is uniform strength throughout.

You can depend upon Eureka Linen Fire Hose to  
protect your life and property.

## EUREKA FIRE HOSE MFG. CO.

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